Case transmission beyond control and the role of Person

JS Journal of Historical Syntax
Volume 2(4), Article 1: 1–52

CASE TRANSMISSION BEYOND CONTROL AND THE ROLE OF PERSON*

CHRISTINA SEVDALI
University of Ulster

Abstract This paper focuses on the mechanism of case transmission found in Ancient Greek. Descriptively speaking, case transmission is the phenomenon whereby a DP from the main clause *transmits* its case to the null subject of the infinitival clause. In this paper we show that this mechanism is not only available in cases of obligatory control (as often discussed in the literature), when the infinitival subject is a case-marked PRO (as is argued for Icelandic by Sigurðsson 1991 a.o.) but also in cases of raising/long distance agreement (LDA), as well cases of control into subject clauses, long distance control (NOC) and control into adjuncts. Moreover, and again unlike other similar cases in the literature, this case copying mechanism is available when the main clause antecedent bears *any* case: nominative, accusative but also genitive and dative. *Prima facie* these data seem to argue for a uniform treatment of all Ancient Greek cases as structural. In this paper we argue that all of the above configurations OC, NOC, and raising/LDA in Ancient Greek involve some version of Agree (Chomsky 2000, 2001). In order to account for all the different environments that case transmission is observed, we adapt Sigurðsson's (2008) proposal whereby infinitives involve a Person head that can be deficient and anaphoric (Borer 1989) and needs to be valued from somewhere. Case transmission is the way of signalling the person specification of infinitival clauses in Ancient Greek. We argue that the rarity of the Ancient Greek typological paradigm is reduced to a culmination of independently available rare language-internal properties.

* I want to thank the following people for long and extremely helpful discussions on what seemed to me a very complex set of data: Elena Anagnostopoulou, Raffaella Folli, Heidi Harley, Alison Henry, Rob Truswell and especially Dora Alexopoulou for some very insightful comments. This paper was presented to the "Workshop on Case" as part of LAGB 2012 at the University of Salford, Manchester. I want to thank the workshop organisers as well as the audience for stimulating talks and comments. I also want to thank three anonymous JHS reviewers whose sceptisism significantly improved the paper. Finally, I want to thank the JHS editor George Walkden, whose care and professionalism made this a very productive process. All errors of course are my own.

1 Introduction

This paper focuses on the phenomenon of case transmission in Ancient Greek. Descriptively speaking, case transmission is the phenomenon whereby in a bi-clausal configuration, [$_A$ … [$_B$ …]], a (null) DP in domain B can be construed as bearing a Case feature X that cannot have originated in domain B, and thus has to be analysed as *transmitted* by a second DP (overt or not) that is clearly within domain A. A possible instantiation of this is illustrated in (1):

(1) $\left[_A\ DP_{NOM} \ldots [_B\ PRO_{NOM} \ldots] \right]$

According to the literature, this phenomenon is found predominantly in obligatory control configurations (OC), as argued extensively by Landau (2000, 2008, 2013), and in particular in OC configurations where PRO is controlled directly by its controller, as opposed to cases where C mediates the control relation.[1] This distinction can be captured within the Agree model of control (Landau 2000, 2004, 2005, 2007, 2008) where there are two routes for control: either through direct controlling of PRO by a DP in the main clause (PRO control), or through C (C control).[2] The phenomenon of case transmission is often seen in juxtaposition with the phenomenon of case independence, where PRO can bear case that is available from within the infinitival clause, like in the traditional Icelandic examples from (Sigurðsson 1991: ex. 8b) where PRO bears quirky case (in this instance accusative) from the embedded subject.

(2) *Strákarnir* *vonast til* [*að* PRO *vanta ekki* ***alla*** *í* *skóla*].
The boys.NOM hope for to lack not all.ACC in the school
'The boys hope not to be all absent from school'

The exact character of case transmission has not received much attention in the literature, mostly because it has been seen as parasitic on control. Sigurðsson (1991) calls it a 'morphological case chain' and proposes (3) (his 7):

(3) Any morphological case on a non-NP must be licensed by an identical NP case.

Landau (2008; *et seq.*), also views it as the morphological expression of PRO-control, because for him case transmission is a reflex of Agree between the antecedent DP and PRO. The fact that case is transmitted in this instance of Agree is a consequence

1 As we will see soon, case transmission has also been found in cases of raising (for example in Polish, Czech and Icelandic). We will come back to this is sections (3) and (4).

2 An anonymous JHS reviewer asks whether this implies that case transmission is (or can be) also a diacritic of the distinction between partial and exhaustive control (PC and EC) as presented by Landau. This is what Landau 2007 argues for in relation to Russian, which arguably marks exhaustive control with case transmission but partial control with case independence. We will come back to a fairly detailed comparison with Russian in section 3.5.

of his OC model: 'in essence with case being expressed in conjunction with other *phi*-features, it is hardly surprising that it will be transmitted and valued along with these features – as the agreement model of OC envisions' (Landau 2008: 880). Crucially, non-obligatory control (NOC) is never found with or predicted to result in case transmission. In Landau's words again 'case transmission fails in NOC, because in NOC PRO does not enter any Agree relation with any antecedent'. PRO in these cases is a logophor (Landau 2000) that picks its antecedent under complex pragmatic conditions. This antecedence relation 'is *always optional*, is *not mediated by Agree*, and perforce *does not transmit case*' (Landau 2008: 908; emphasis my own).

In this paper, we focus on a language that exhibits exactly what Landau's theory does not predict: case transmission beyond OC. The contexts that we examine are: raising/long distance agreement (LDA), control into subject clauses, long distance control (NOC), and control into adjuncts. The empirical generalization is that case transmission in AG is found in *every* configuration where there is co-reference between a main clause DP and an infinitival subject, irrespective of (a) the case of that DP, (b) the grammatical function of that DP in the main clause, and (c) the type of the co-reference relation (controller – PRO; moved DP – copy).

The theoretical question of this paper is what conditions case transmission in environments beyond OC. The answer that we argue for relies both on language specific and universal conditions. In particular, we argue that a language will exhibit case transmission in generalized environments iff:

i. All (oblique) cases are mixed in that language (they can be structural and inherent in different configurations);
ii. This language has strong – weak phases on the C level in non-finite clauses;
iii. This language has independent case for the subject of infinitival clauses;
iv. This language also allows small *pro* as an infinitival subject.

Like Landau (2000) and much subsequent work, we argue that case transmission beyond control is always parasitic on Agree. Our departure from Landau's proposal is that while in his theory only OC is mediated through Agree, the AG data show that this is true for any kind of co-reference, at least in this language. AG is then a special case, where OC, NOC, control into adjuncts and LDA are all mediated through Agree and as a result they are all manifested through case transmission. To account for the involvement of Agree in all of these seemingly distinct environments we adapt Borer (1989) and Sigurðsson (2008) in arguing that infinitival clauses involve a potentially deficient and anaphoric Person head that needs valuation through Agree. This way we can ensure that raising/LDA and control-type configurations can be analysed in a similar enough way for all of them to be manifested through case transmission. The OC effect arises through the external valuation of the Person head in infinitives that will then identify the content of PRO.

Long distance control, which is typically analysed as an instance of NOC, is also mediated through Agree. LDA and the lack of defective intervention in Ancient Greek illustrates that Ancient Greek datives come in two varieties: structural DPs that participate in Agree and act as goals, and inherent DPs that do not intervene (in the sense of Řezáč 2008). Dative therefore (and genitive) is arguably a mixed case (Alexiadou, Anagnostopoulou & Sevdali (2013); Anagnostopoulou & Sevdali (2012)). Control into adjuncts is analysed on a par with Landau's approach, which adopts Williams's (1992) theory of predication, where PRO in adjunct clauses is bound by a null operator found in SpecCP.

Ancient Greek is a very rare typological case, because it relies on other, equally rare, independently found language-specific properties: in particular, the generalized structural case property (Alexiadou et al. 2013 and Anagnostopoulou & Sevdali (2012) for AG) and the availability of a small *pro* as an infinitival subject concomitant to strong and weak phases at the C level (Sevdali 2007; 2013). The main consequence of this proposal is that some version of *Agree* (Chomsky 2000; 2001) mediates all instances of long-distance dependencies in this language, not just OC. Therefore the theoretical distinction between LDA, OC and NOC has little descriptive and explanatory power in a language like AG, where all of the above phenomena are manifested with exactly the same mechanism. What seems to be important is the marking of a deficient and anaphoric Person head cross-linguistically. This is done through various means and the AG pattern of case transmission vs. case independence is just one available option.

The paper is organized as follows: in section 2 we summarize the necessary background for the discussion: the relevant properties of AG infinitival syntax as presented in Sevdali (2007; 2013). In section 3 we outline the phenomenon of case transmission in non-control contexts, in particular: raising/LDA – section 3.1, NOC (control into subject clauses and long distance control) – section 3.2, control into adjuncts – section 3.3. In section 3.4 we discuss some exceptional cases whereby control is not accompanied by case transmission, and in 3.5 we compare the AG data to Russian and Icelandic. In section 4 we first outline the 'case transmission generalization' whereby in AG all instances of co-reference between a DP in the main clause and PRO are signalled through case transmission, and we spell out our proposal, whereby case transmission marks matching of Person between the two clauses. Our analysis depends on various technical proposals that exist independently in the literature, like the availability of Person heads (Sigurðsson 2008; Platzack 2004), Multiple Agree (Hiraiwa 2001), and the possibility of Probes to probe upwards (Baker 2008). Finally, in section 5 we conclude and discuss the consequences of our proposal especially in relation to cross-linguistic fixing of an anaphoric Person head.

2 Ancient Greek Infinitival Syntax

Ancient Greek infinitives have received some attention in the recent generative literature (see for example Andrews 1971; Quicoli 1982; Horrocks 1987; Philippaki-Warburton & Catsimali 1989; Tantalou 2003; Spyropoulos 2005; Landau 2008, 2009; Sevdali 2003, 2007, 2009, 2013). The main point of interest has been the fact that overt infinitival subjects (in the accusative case, a construction called *Accusativus Cum Infinitivo* – AcI) are in seemingly free alternation with PRO. This phenomenon, available also in a handful of other languages and constructions, such as English gerunds as well as Malayalam, Tamil, and Irish infinitives, is regarded by Landau (2013) as an open problem which poses a challenge to any theory of finiteness and control. Sevdali (2007, 2013) has attempted to account for this variation. In this section we summarize the facts that she has brought forward and we also sketch her proposed analysis.

AG infinitives have a very extensive distribution as complements of verbs of saying, thinking, knowing, verbs of wanting, possibility, future-referring, in addition to impersonal verbs.[3] AG infinitives surface with a variety of infinitival subjects, as evidenced by Sevdali (2013) (her examples (1), (2), (7) and (9) from the main paper and (4) from the appendix respectively):

(4) AcI with a disjoint reference subject:[4]

Ego: oun (. . .) ouch he:goumai [*didakton einai* ***arete:n.***]
I.NOM then not think.1.SG taught.ACC to be virtue.ACC

'I then think that virtue cannot be taught.' (Plato, *Protagoras*: 320b, 4)

(5) Emphatic AcI:

Oiomai [***eme*** *phaulon einai ze:te:te:n*]
Think.1.SG me.ACC bad.ACC to be researcher.ACC

'I consider myself to be a bad researcher' (Plato, *Charmides*: 175e)

(6) Accusative arbitrary PRO:

Philanthro:pon *einai dei*
Friendly.ACC to be must.3.sg

3 The full distribution of AG infinitival clauses is more complex and includes also subject infinitival clauses in addition to adjunct (result and temporal) infinitival clauses. Here we only focus on complement clauses. We will come back to subject clauses, and control into adjuncts in section 3. For a full distribution and discussion see Sevdali (2007; 2013).

4 An anonymous JHS reviewer asks how we can explicitly rule out ECM as the source of the accusative case here. Sevdali (2007; 2013) presents a wide array of arguments to that effect, which include the existence of AcI in a lot of non-ECM environments as well as infinitives as subjects of impersonals/passives, infinitives as complements of a wide variety of verbs, infinitives as adjuncts among others. We refer the reader to this work for extensive data and argumentation, but also section 3.2 in this paper where we observe AcI with passives and impersonals.

'One needs to love people' (Isocrates, *Nicocles*: 15)

(7) Accusative small *'pro'*:[5]

All' emoige, [*ephe:* *o:* *So:crates*], ***didakton*** *einai dokei*
But me.DAT *ge* said.3.SG oh Socrates taught.ACC to be seems.3.SG

'But, he said, at least for my part, Socrates, I think it is teachable (wisdom)'
(Plato, *Euthydemus:* 282c)

(8) Subject Control manifested with case transmission:

Ego: *men* *ouch* *homologe:so:* [***akle:tos*** *he:kein*]
I.NOM then not admit.1.SG uninvited.NOM to have come

'I will not admit that I came unasked.' (Plato, *Symposium*:174c)

(9) Object Control manifested with case transmission:

Kurou *edeonto* [*ho:s* ***prothumotatou*** *genesthai*]
Cyrus.GEN pleaded.3.PL as most willing.GEN to become

'They pleaded to Cyrus to become as willing as possible.'
(Xenophon, *Hellenika:* I.5.2)

The empirical generalization that Sevdali arrived at is that overt infinitival subjects are licensed when they are distinct from that of the main clause (4) or when they are emphatic (5). In addition to that, accusative case is available for null infinitival subjects when they are of an arbitrary (6) or a referential variety of *pro* (7). Example (7) is referred to as 'referential *pro*' because the infinitival null subject picks a referent available in the discourse, but not locally available in the main clause.[6] This point is crucial and its relevance will become clear later. Control is manifested through case transmission (or case agreement across copula – CAAC as it is called by Sevdali 2013) where PRO seems to be case-marked with the case of its main clause controller (nominative in (8), genitive in (9)). Crucially, case transmission seems orthogonal both to the value of the case feature of the controller (there is nominative, genitive, accusative and dative case transmission observed) and to whether the configuration is an instance of subject or object control. The exact nature of this operation lies at the heart of this paper, so we will come back to this in due course.

5 AG has a wide variety of discourse particles that are sometimes enclitic. *Ge* is possibly a focus particle that is here seen attached to the dative argument *emoi*. For more on AG particles see Devine & Stephens (1999) and Arad & Roussou (1997).

6 An anonymous JHS reviewer wonders why we do not label the null infinitival subject a logophoric PRO in examples like (7). While this is certainly a possibility, the main reason behind this is the existence of accusative object drop in AG (as argued in Sevdali 2007). Normally, the dropped object is argued to be *pro* and therefore, if this category is available in this language, it also could be the one found in examples like (7) as well. For a representative example of AG object drop, see example (46) in section 3.2.

The theoretical part of the analysis as proposed in Sevdali (2013) involved an extensive set of arguments that all AG infinitival clauses are CPs, but CPs that come in two flavours: strong and weak phase CPs, in direct parallelism with phasehood at the little *v* level.[7] Control infinitives are weak phase CPs that are transparent to operations from outside like case transmission that gives rise to the phenomenon in (8) and (9). The mechanism of case transmission was assumed to take place only in cases of control. Non-control infinitives are strong phase CPs, and are defined as such by the properties of their left-periphery. Strong phase CPs can bear *phi*-independent subjects that are contrastive topics, topic-switches, newly introduced or reintroduced topics. Finally, accusative in AcI was argued to be available by default, by virtue of an argument being licensed in the position of the infinitival subject. Crucially, according to Sevdali (2007, 2013), the availability of control is orthogonal both to the finiteness of the embedded clause (the crucial data for this claim come from finite control in Latin) and also the Tense of the embedded clause. AG infinitives are shown to allow for AcI and control in exactly the same environments, with exactly the same verbs.

In this paper, we focus precisely on the mechanism of case transmission. We show that it is found in a variety of other constructions beyond control. As a matter of fact, we show that case transmission is found in *any* instance where the infinitival subject is co-referential with an element of the main clause. In the next section, we discuss in detail instances of raising/long distance agreement (LDA), control into subject clauses and long distance control (NOC), and control into adjuncts.

3 Case Transmission Beyond Control

To start, let us make a brief note on the methodology used in collecting the data of this paper. The data that we are presenting mainly come from our own corpus search within the Perseus Digital Library (http://www.perseus.tufts.edu/hopper/) and the Thesaurus Linguae Grecae (TLG) via the Diogenes software.[8] Authors

7 An anonymous JHS reviewer and the editor are wondering whether proposals on the existence of strong and weak phases on the C level can be found independently elsewhere in work that is not directly related to case transmission and control. The proposal of strong and weak phases on the C level, in parallel to the *v* level, is not new, but, to my knowledge, it has never been found in environments distinct from embedded clauses. In particular Landau (2004) proposes the distinction of strong vs. weak phases on C, in trying to account for the availability of finite subjunctives in Balkan languages. This is also argued by Alboiu (2007), in order to account for the behaviour of OC Romanian subjunctives. Finally, and in a rather different empirical domain, Basse (2008) has argued that phasehood on the C level is related to the force of assertion, and factive and non-factive complements have properties of defective and non-defective phases respectively. Interestingly, Basse uses this proposal to account for well-known syntactic differences between factive and non-factive complements in terms of the former but not the latter disallowing long-distance adjunct and subject extraction while allowing slightly degraded object extraction.

8 Sincere thanks go to Peter Heslin who developed the Diogenes software and made it available for free and also for his willingness to answer questions on the most efficient ways to search for the complex constructions I was looking for.

that were consulted were: Herodotus, Xenophon, Thucydides, Plato, Aristophanes, Aristotle, Demosthenes, Lysias and Isocrates. Translations are modified from Perseus Digital Library and often checked from various sources. In problematic and rare cases, the Liddell-Scott Greek-English lexicon is often consulted (Liddell & Scott 1940). Grammars are often also consulted (Goodwin 1894, Jannaris 1897, Smyth 1920, Schwyzer 1953) and when data are taken from other sources (grammars, other papers) their source is clearly stated. Constructed Ancient Greek examples are avoided and unaccredited examples are only included if they have been previously discussed in the literature and are deemed important for some exceptional reason.

This section constitutes the main empirical contribution of this paper, where we present a wide array of data where the case of an argument of the main verb is somehow transferred within the embedded infinitival clause. The diagnostic that we will use is the one standardly used for probing into the case of null elements, and that is subject-predicate agreement with copular verbs. This technique was first used by Andrews (1971), Philipaki-Warburton & Catsimali (1989), Spyropoulos (2005) and Sigurðsson (1989; 1991).

Before we get into the specific infinitival constructions we want to briefly show how subject agreement works in Ancient Greek. When the verb of a sentence is copular, the subject always agrees in case with the adjectival or nominal predicate of the verb (ex. 10 below).[9] In instances where the predicate denotes the possessor, 'part-of-a-whole' or a property, it can appear in the genitive, referred to as the 'predicative' genitive, seen in example (11).

(10) *E:n gar* ***he: parodos stene:***
Was.3.SG then the road.**NOM** narrow.**NOM**
'The road was narrow' (Xenophon, *Anabasis*: 1.4.4)

(11) *Ego: de* ***toutou tou tropou*** *eimi aei*
I.NOM then this.GEN the way.**GEN** be.1.SG always
'I am always of this character' (Aristophanes, *Plutus:* 246)

AG also allows what is referred to as secondary, adverbial predication with verbs that are not copular. The adjective in this construction is often translated as an adverb. The subject agrees in case with the secondary predicate as it did in example (10) also:

(12) *Ske:noumen* ***hupaithrioi***
Camp.1.PL ground.**NOM**
'We camped on the ground' (Xenophon, *Anabasis*: 5.21)

9 When the predicate is an adjective, agreement is manifested through gender as well as number, in addition to case. When the predicate is a noun, this is not often possible, and case agreement is the only possibility. We will come back to the significance of the different behavior of nouns and adjectives with respect to agreement in section 3.4.

To summarize, subject-predicate agreement is robust and exceptionless and is found both with copular verbs and with adverbial predicates. Obviously this construction can provide us with a clear diagnostic on the case of the subject when it is null. The syntactic analysis of subject-predicate agreement has not received too much attention in the literature. In particular, there are various proposals whereby the adjectival predicate is analysed as being 'caseless', or has default case, or it receives case via agreement through structural case assignment (see Maling & Sprouse 1995 for an overview and a novel analysis in favour of the fact that predicates receive case through structural case assignment in a rule similar to Sigurðsson's 1989 'Structural Case Path'). We will not have anything insightful to add concerning the exact operation of subject-predicate agreement.

3.1 Long distance agreement (LDA) / raising

The main verb that we will focus on when we discuss Ancient Greek 'raising' is the verb *dokei* 'it seems'. Later in the section we will also discuss the verb *eoika* 'it appears' and passivized *legetai* 'it is said'. We will conclude with an instance of long distance agreement of an unusually non-local kind.

Traditional grammars (Goodwin 1894, Jannaris 1897, Smyth 1920, Schwyzer 1953) describe *dokei* as participating in two constructions, an 'impersonal' and a 'personal' one. The main difference between the two constructions has to do with whether the verb appears in an inflected or a third person singular, default form. In generative terms, this is of course the difference between a raising and a non-raising version of the same verb. Crucially for AG, the main diagnostic for the type of the construction we are dealing with is not word order and the surface appearance of the 'subject' of *dokei*, but the agreement between this subject and the verb itself.[10] As a result, the best characterization of this construction would be long distance agreement (LDA) and not raising proper where the main verb agrees with the subject of the embedded clause that has remained *in situ* (see for example Boeckx 2009). Consider examples (13)–(15) below, paying attention to the agreement between the nominative and the main verb.[11]

10 Ancient Greek has notoriously variable word order, displaying a lot of discontinuity to the extent that it has been characterized as a discourse-configurational language with a [Topic – Focus – Verb – Pragmatically unmarked material] word order by Matić (2003). In a lot of the examples we discuss it is extremely hard to tease apart the main from the embedded clause. As a result we will never make any claims based on order alone; we will almost exclusively rely on noun morphology and verbal inflection to diagnose the grammatical function of elements. Similarly, the use of the term 'raising' is merely descriptive and is used here for constructions associated with verbs that lack an external theta-role (like the verb *dokei* discussed in the text). Questions related to the reasons for the movement of the infinitival subject into the main clause, and even whether this movement is truly A-movement, are left open.

11 An anonymous reviewer wonders whether AG ever allowed lexicalized nominative subjects in the infinitival clause, like the ones for example found in Modern Greek gerunds (see Sitaridou 2002). This is definitely not the case in AG, where overt infinitival subjects are emphatically accusative.

(13) ***Pantes*** *eran emoige* ***edokoun*** *autou*
Everyone.**NOM** to love me.DAT.*ge* seemed.3.PL he.GEN
'Everyone seemed to me to love him' (Plato, *Charmides:* 154 c)

(14) ***Basileus*** *gar emoige dokeis* ***su*** *phusei*
King.**NOM** then me.DAT seem.2.SG you.**NOM** nature.DAT
pephukenai
to be born.INF.PRF.PASS
'You seem to me to have been born as a king by nature'
(Xenophon, *Cyropaedia*: 5, 1: 24)

(15) *Alla moi* ***dokei*** ***kairos*** *einai*
But me.DAT seem.3.SG time.NOM to be
'But the time seems to me to have come' (Aeschines, *Speeches:* 1.4)

The examples above have the following main characteristics:

i. The verb is canonically inflected for person, number etc.
ii. There is a nominative argument present, arguably the subject, which triggers agreement with the verb.
iii. In addition to the nominative argument, there is also a dative experiencer.
iv. There is an infinitival clause, possibly as a complement of the verb.

If these are indeed instances of raising, then we also expect to find constructions where the subject has remained within the infinitival clause, receiving accusative case *in situ*. This prediction is straightforwardly borne out in the following four examples.

(16) *Kai edoxen he:min (…)* [***toutoni men Olumpiodo:ron*** *tou*
And seemed.3.SG to us.DAT him.ACC then Olumpiodoron.ACC the
kle:rou holou amphisbe:tein]
estate.GEN all.GEN to claim
'And it occurred to us that this Olumpiodorus should lay claim to the whole estate.' (Demosthenes, *Against Olumpiodorus*: 22)

(17) *Edokei gar moi* [*akonta auton ekfeugein* ***to***
Seemed.3.SG then me.DAT unwilling.ACC him.ACC escape the.ACC
lechthen]
speaking
'It seemed to me then that the words escaped him unintentionally'
(Plato, *Lysis:* 213d)

(18) *O: neania, aischron* [*dokei soi*] *einai* ***to***
Oh young-man.VOC shameful.ACC seem.3.SG to you.DAT to be the.ACC
pholosophein
philosophizing

'Young man, do you consider philosophizing to be shameful?'
(Plato, *Lovers:* 132c)

(19) *Emoi men toinun dokei* [***he:mas*** *outo:si poie:sai*]
Me.DAT then now seem.3.SG us.ACC this-way to act
'And I think we should act this way' (Plato, *Theages:* 131a)

The characteristics of this construction are the following:

i. The verb is in the 3rd person singular, displaying default agreement.
ii. There is never an overt nominative argument present. There is a dative experiencer.
iii. There is an infinitival clause, often referred to as the structural subject of the impersonal verb.
iv. The embedded clause contains a subject marked with accusative case.

Examples (16)–(19) present a picture that is distinct from that of examples (13)–(15), whereby the infinitival subject does not agree with the verb in the main clause, but has remained infinitive-internally and surfaces in the accusative case. We will come back to the analysis of the two paradigms in section 4.2.

Ancient Greek grammars do not report any significant change in meaning associated with the impersonal and the raising construction, and the translations also verify this. As a matter of fact, Vasileiou (2001) explicitly argues that the availability of both constructions is a mere instance of dialectal variation. To this effect, note that the infinitival clause is identical morphologically in the two cases above: unlike familiar examples from English or Brazilian Portuguese (Martins & Nunes 2005), the availability of raising from within an embedded clause is not accompanied by some concomitant alternation in the structure of that embedded clause (non-finite vs. finite clause in English, introduction with a complementizer or not in Brazilian Portuguese). In short Ancient Greek looks as if it has long distance agreement. LDA can also arguably be found in Modern Greek (Alexiadou, Anagnostopoulou, Iordachioaia & Marchis 2012), where one argument is associated with two case features. Alexiadou et al. argue for two crucial prerequisites for the existence of LDA in Modern Greek: (a) no possibility for the embedded subject to receive case from the embedded verb *in situ* (in the MG case it is a subjunctive not an infinitive) because the embedded subjunctive does not have a case feature to assign and (b) lack of C layer in the embedded clause. AG examples (16)–(19), however, show clearly that it is perfectly possible for the embedded subject to stay in the infinitival clause and receive accusative *in situ*. A crucial question then arises as to whether accusative is actually available in examples (13)–(15) above. We will come back to this issue in section 4.2.

A natural question regarding Ancient Greek LDA would be what happens when the infinitive is a copula and there is the possibility of case transmission.

Does the adjectival predicate inside the embedded clause agree in case with the nominative (structural) subject of the main verb, or does it appear in accusative that is theoretically independently available inside the infinitival clause? It would be in principle acceptable to find both, especially as Ancient Greek has widespread AcI. As we already saw in passing in example (15), Ancient Greek predictably marks co-reference with case transmission, in this environment, as seen in the following examples:

(20) ***Aphrones*** *de kai* ***phronimoi*** *dokousi* ***anthro:poi*** *einai*
Unwise.NOM.PL then and wise.NOM.PL seem.3.PL men.NOM.PL to be
tines *soi?*
some.NOM.PL to-you.DAT
'And there are some men that you regard as unwise and some as wise?'
(Plato, *Alcibíades II:* 138d)

(21) *all' edokei autois* ***houtos epite:deios*** *einai* ***me:nute:s***
but seemed.3.SG to-them.DAT he.NOM useful.NOM to be
'But he seemed to them to be a useful prosecutor.' (Lysias, *Agoratum:* 18)

(22) *Kai moi edoxen* ***kine:teos*** *einai* ***o philogumnaste:s***
And me.DAT seemed.3.SG flexible.NOM to be the lover-of-athletics.NOM
'And the lover of athletics seemed to me to be flexible' (Plato, *Lovers:* 134a)

Examples (20)–(22) are all instances of a nominative argument agreeing with the main verb, in addition to an adjectival predicate obligatorily agreeing in case with that nominative argument. In other words they too display case transmission which is the mechanism employed in subject and object control (cf. examples (8)–(9)). On the assumption that LDA is directly comparable to raising, this state of affairs would provide *prima facie* evidence for approaches that equate control to raising (movement approaches to control, eg. Hornstein 1999 and much subsequent work). Landau (2003, 2007) argues that a contrast between raising and control constructions with respect to case transmission would support a non-movement approach to Control. This contrast is found in languages like Icelandic (Sigurðsson 2008) and is schematically illustrated in (23) (from Landau 2007: 305):

(23) a. RAISING:
DP $_{i\ \text{DAT}}$ ... T/V ... [t_i ... Inf ... FQ$_{\text{DAT}}$]
b. CONTROL:
DP $_{i\ \text{NOM}}$ ... T/V ... [PRO$_i$ ... Inf ... FQ$_{\text{DAT}}$]

As a matter of fact, Bobaljik & Landau (2009) discuss the Icelandic paradigm and use exactly this morphologically expressed distinction between raising and control to argue against Boeckx & Hornstein (2004), and the general enterprise of movement theory of control. Ancient Greek on the other hand does not have this con-

trast and both control and raising/LDA are manifested through case transmission illustrated schematically in (24):

(24) a. LDA:
$\ldots$ T/V $\ldots$ [DP $_{i\ \text{NOM}}$ $\ldots$ Inf $\ldots$ Pred_{NOM}]
Agree

b. CONTROL:
DP $_{i\ \text{NOM}}$ $\ldots$ T/V $\ldots$ [PRO_i $\ldots$ Inf $\ldots$ Pred_{NOM}]

This is something that Landau's theory would have to explain: why are raising and control manifested through exactly the same mechanism (case-transmission) in Ancient Greek but not (for example) in Icelandic? On the other hand, in languages like English raising and control configurations look similar, and can only be teased apart from their semantic properties. To make matters more complicated, as argued by Andrews (1990) and reported in Landau (2008), cross-linguistically raising is most often manifested with case percolation[12] (or case retention) schematically exemplified in (25) below:

(25) CASE PERCOLATION (as it would be manifested in Ancient Greek):
DP $_{i\ \text{ACC}}$ $\ldots$ T/V $\ldots$ [~~DP~~ $_{i\ \text{ACC}}$ $\ldots$ Inf $\ldots$ Pred_{ACC}]

This possibility is never attested in Ancient Greek, and it is therefore clear that this language does not utilize either of the two available strategies to distinguish LDA/raising and control: case independence vs. case transmission or case percolation vs. case transmission.

To eliminate the possibility that this paradigm is only due to one idiosyncratic Ancient Greek verb, let us present some other predicates that illustrate the same behaviour: case transmission with LDA/raising. The following examples involve the verb *eoika* 'appear' (example (26) taken from Smyth 1920: 278):

(26) *Nun ge he:mo:n eoikas* [***basileus*** *einai*]
Now then to-us.GEN appear.2.SG king.NOM to be
'Now at least you appear to be our king' (Xenophon, *Cyropaedia:* 1. 3. 12)

(27) ***Theios*** *eoiken* ***o topos*** *einai*
Divine.NOM appear.3.SG the place.NOM to be
'The place seems to be divine' (Plato, *Phaedrus*: 238c/d)

In example (26), *eoika* is canonically inflected in the second person with a null subject due to standard *pro*-drop in Ancient Greek and takes an infinitival complement

12 I want to thank an anonymous JHS reviewer for urging me to include some discussion on case percolation.

clause. The predicate within the infinitival clause, *basileus,* appears in the nominative. Similarly, in (27) the surface subject of *eoiken* (this time overt: *o topos*) triggers case transmission within the infinitival clause, and as a result the adjectival predicate *theios* surfaces with nominative case. The interesting thing about this verb is that we never find it with an unambiguous AcI infinitive. Whatever the syntax of *eoika*, however, examples (26) and (27) show another instance where case transmission is obligatory in raising/LDA environments.

Let us also illustrate the same phenomenon with passive verbs. The following two examples illustrate the raising paradigm with the verb *legetai* 'it is said': example (28) is the raising and (29) is the non-raising version.

(28) *Legetai* [***ton Archidamon*** *peri tas Acharnas meinai*]
Is-said the Archidamus.**ACC** around the Acharnes to stay
'It is said that Archidamus is staying around Acharnes'
(Thucydides, *Historia* II: 20.1)

(29) ***He Kilissa*** *legetai* [*dee:the:nai Kurou* [*epideiksai to*
The Kilissa.**NOM** is said to have asked Cyrus.GEN to show the
strateuma aute:i]]
army to-her
'The Cilician queen is said to have asked Cyrus to show the army to her'
(Xenophon, *Anabasis*: I.2.14)

In example (28) the passive verb *legetai* selects an AcI infinitival clause with an accusative subject staying *in situ.* The subject of the main verb appears null, and is either a null expletive or the entire infinitival clause. In (29) the verb has managed to probe within the infinitival clause and as a result the infinitival subject has moved from its original position and surfaces in the nominative case, as the structural subject of *legetai.* An interesting question would be whether passive verbs also allow for case transmission on a par with the raising facts above (cf. examples (20)–(22)). The answer is positive, as seen in the example below:

(30) *Legontai* ***Athe:naioi*** *dia Periklea* [***beltious***
Are-said.3.PL Athenians.**NOM** by Pericles.ACC better.**NOM**.PL
gegonenai]
to have become
'Athenians are said by Pericles to have become better' (Plato, *Gorgias:* 515e)

In example (30) above the raised subject of the passivized verb *legontai* appears in the nominative case and transmits its case to the adjectival predicate inside the infinitival clause. This is entirely predictable both due to the standard analysis of passives and raising verbs involving the same mechanism, but also in light of the Ancient Greek data presented in this section. An important thing to note would be that all examples with passive verbs instantiate a much clearer case where the

embedded subject has actually physically moved to the main clause, and therefore would be evidence that Ancient Greek has true raising in addition to LDA. If we are to give an analysis for these two constructions, it needs to be an analysis that treats them both entirely on a par. Finally, consider the following example:

(31) *Edokse moi houtos ho ane:r dokein men einai*
Seem.3.SG.AOR me.DAT he.NOM the man.NOM to seem.INF then to be.INF
sophos allois te pollois anthro:pois
wise.NOM other.DAT.PL and many.DAT.PL people.DAT.PL
'This man seemed to me to be considered wise by a lot of other people'
(Plato, *Apologia*: 21.c.6)

The example above is an instance of an LDA case where the main verb does not just agree with a DP situated one clause down: instead it manages to probe down two clauses and agree with the DP of the second embedded clause. A linear representation of example (31) (omitting irrelevant details) in addition to a schematic representation of the agreement relationship is illustrated below:

(32) a. [*Edokse moi* [*dokein tois allois anthro:pois* [***ho ane:r*** *einai* ***sophos***]]]
b. [Seemed to me [to seem to other people [**the man-NOM** to be **wise-NOM**]]]
c. […T/V …DP $_{i\ \mathrm{DAT}}$ […Inf$_1$… DP $_{j\ \mathrm{DAT}}$ [DP $_{k\ \mathrm{NOM}}$ …Inf$_2$ …Pred$_{\mathrm{NOM}}$]]]

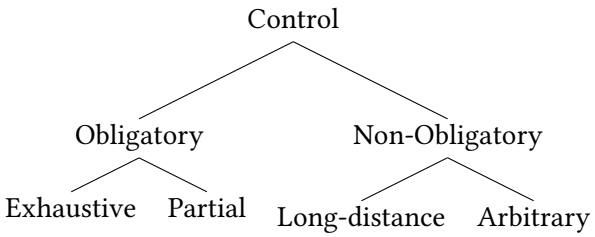
Leaving aside for a moment the fact that Ancient Greek allows for raising/LDA across a dative (also seen in examples (13)–(15), as pointed out by an anonymous reviewer), we see here that LDA is actually possible in a much larger domain than normally assumed, namely within a clause embedded twice over. This is something that our analysis must capture and to which we will come back in section 4.2.

To summarize this section, we have shown that Ancient Greek has raising and LDA constructions, both manifested with case transmission, like control structures. This is not the case in other languages like Icelandic that consistently keep the manifestation of the two structures apart. If we are to retain the intuition that case transmission is the morphological instantiation of some form of the syntactic operation Agree, then our analysis would have to be able to account for the existence of case transmission both in LDA/raising and control environments in this language.

3.2 Non Obligatory Control – NOC

In this section we illustrate patterns of case transmission in a different environment, namely NOC. NOC has been a notoriously difficult notion to define, not least because of the extensive cross-linguistic variation in the expression of OC and NOC. Here we will adopt Landau's (2000) typology of control (Landau 2000: 3):

(33)



In his most recent work, Landau (2013) has reviewed perhaps exhaustively the literature on control and has proposed the three definitive syntactic determinants of OC vs. NOC: (a) the *position* of the clause (complement, subject or adjunct), (b) the *category* of the clause (CP vs. NP/DP), and (c) the *finiteness* of the clause (its T/Agr specifications). Specifically, Landau (2013) reviews a variety of data from a range of languages and shows that complement clauses fall under OC while subject and adjoined clauses fall under NOC, and NOC into non-finite clausal complements is unattested. His view, argued extensively in all of his work, is that there is a '*purely configurational* aspect in the distribution of OC' and by extension NOC. While OC is achieved through syntactic means (for Landau through the Agree model of control, for Hornstein through the Movement theory of control a.o.), NOC is a phenomenon that is not entirely syntactic, and for example for Landau, PRO in NOC is a logophor whose content is not fixed by Agree, but through complex pragmatic conditions.

As we have already seen, Ancient Greek arbitrary constructions (a subtype of NOC in the diagram above) involve an accusative PRO (cf. example 7 above). In this section, we will focus on the other subclass of NOC: infinitives with impersonal verbs, and long distance control. As we will see, interestingly, Ancient Greek marks those infinitival subjects with case transmission, not with independent accusative.

This section is organized as follows: we will start by presenting impersonal verbs that take a dative experiencer and an infinitival clause. These verbs are mainly *exesti* 'it is possible' and *prose:kei* 'it becomes of you' but also impersonal *dokei* 'it seems', *prepei* 'must' and *sumbainei* 'it happens'. These verbs never appear with a nominative argument (with the exception of raising *dokei* – that was already discussed in 3.1). The generalized pattern that is observed is that whenever the null infinitival subject refers to the dative experiencer, that subject surfaces with dative case. In the end of the section, we also present instances of long-distance control.

Let us first start with infinitives as subjects of impersonals. These verbs never surface with a nominative argument and therefore the infinitival clause could be their structural subject. If this is the case, then these are instances of control inside a subject clause, an environment that should only give rise to NOC as commonly assumed. Alternatively, we could assume that the infinitival clauses are the associates of a null expletive in the subject position. Recall that word order cannot help us decide on whether the infinitival clause is a true subject of the main verb or not: subjects in Ancient Greek can be pre-verbal, post-verbal or null. Control into

an extraposed clause is also considered an instance of NOC (cf. Landau 2013). In any case, deciding between the two analyses is not vital for us, as both are environments that give rise to NOC. All major Ancient Greek grammars analyse the infinitival clause in these environments as the subject of the impersonal, on a par with standard assumptions in the theoretical literature that null subject languages do not have null expletives (as argued first by Alexiadou & Anagnostopoulou 1998 among many others). For all of the reasons expressed here, we will treat these environments as NOC.[13]

Infinitives as subjects of impersonals is another environment where an argument (the null infinitival subject) that could appear with a local case (accusative) has case transferred to it instead, as a reflex of identity of reference. See examples (34)–(37) below with the verb *exesti* 'is possible'.

(34) ***Philippo:i*** *de exestai kai legein kai prattein hoti bouletai*
Philip.DAT then is-possible and to say and to do that want.3.SG
'Philip shall be free to say and do what he pleases' (Demosthenes 9:2)

(35) ***Humin eudaimosi*** *exesti genesthai*
You.DAT.PL happy.DAT.PL is-possible to become
'It is possible for you to become happy.' (Demosthenes 3: 23)

(36) *Nun* ***soi*** *exestin* [***andri*** *genesthai.*]
Now you.DAT is-possible man.DAT to become
'It is now possible for you to become brave.' (Xenophon, *Anabasis*: VII.1.21)

(37) *Exestai* ***he:min*** [***pezois*** *euthus machesthai*]
Is-possible.FUT to-us.DAT.PL on-foot.DAT.PL directly to fight
'It will be possible for us to fight on foot directly.'
(Xenophon, *Cyropaedia* 4.3, 14)

Example (34) shows the standard syntax of *exesti:* it never has an overt nominative argument (unlike *dokei*), so it is a true 'impersonal' verb, not a raising verb. Instead it is always accompanied by a dative argument and an infinitival clause. Whenever the infinitival subject refers to that dative argument, as in (35)–(37), then the adjectival predicates appears in the dative case, indicating that the null subject must be construed as dative also. *Exesti* of course has the possibility of taking an infinitival clause that displays AcI as seen in (38):

(38) *Gegrammenon esti* [*me: exeinai* [***phugadas*** *hopla*
Written.ACC is.3.SG not to be-possible.INF exile.**ACC**.PL arms.ACC
epipherein]]
to bear.INF
'For it is written down (in laws) that it is not possible for exiles to bear arms.'
(Demosthenes, 17.16)

13 We will shortly come back to an alternative possibility.

Before we move on to verbs that behave in a similar manner, we want to explore a different possibility for the syntax of verbs like *exesti*: namely that of the dative argument functioning as a quirky subject, and therefore these environments being best analysed as cases of OC.[14] Quirky subjects have been argued to exist most famously in languages like Icelandic using diagnostic tests for subjecthood (cf. Zaenen, Maling & Thráinsson 1985, Sigurðsson 1989; 2000 among many others). These tests include: (a) reflexivization, (b) subject-verb inversion (in V1 and V2 environments) (c) control, (d) conjunction reduction, (e) exceptional case marking, (f) raising, and (g) subject floating (among others). According to Holmberg & Platzack (1995), these subject diagnostics are mostly designed to show that datives are not topicalized objects in Icelandic, and in particular to show that datives in these constructions are in the only true subject position in Icelandic, i.e. SpecTP, and not in a position of scrambled, topicalized objects. On a similar vein, Allen (1995) argues that certain dative arguments are quirky subjects in Old English adapting the classic subjecthood tests, and focusing on ones that can indeed be replicated for Old English, such as coordinate subject deletion, and other indicative facts such as the lack of overt expletive subjects in constructions with dative arguments, the overwhelming animacy of dative arguments etc. However, even (Allen 1995: 156) admits that 'evidence for the syntactic status of non-nominative experiencers is unfortunately slender for Old English'. The main reason is due to the fact that not all subjecthood tests can be replicated for Old English. Coming now to AG, we are facing a similar problem: on the one hand certain tests cannot be replicated for this language either because the relevant environments do not exist in AG (e.g. subject-verb inversion in V1 and V2 environments, exceptional case marking etc), or because subjects behave similarly to objects in AG with respect to some of these tests. For example, regarding control, we have seen in examples (8)–(9) that subjects and objects both control PRO in AG (and transmit their case too). Similarly, Allen's (1995) most reliable diagnostic, coordinate subject deletion, is found both with subjects and objects in AG (see example (46) below for an instance of coordinate deletion with an object). It seems, therefore, that if we were to argue that AG datives in the examples of this section are indeed subjects, we would have to invent an entirely new set of diagnostics for AG, distinct from diagnostics used for other languages, those with strict word order and expletive subjects such as Icelandic and Old English. Given that this is not currently possible, we are leaving the issue open for further research, and we continue assuming that these environments are indeed NOC environments.

Coming back to impersonal verbs, the exact same pattern found with *exesti* is also found with *prose:kei* 'it becomes of you', a verb that also takes a dative argument and an infinitival clause: when the infinitival subject refers to the dative argument of the main verb, that dative argument transfers its case to the infinitival

14 I want to thank an anonymous JHS reviewer for raising this possibility, as well as the JHS editor who pointed me to the direction of Allen's (1995) work on quirky subjects in Old English.

subject.

(39) ***Panti*** *prose:kei* [***archonti phronimo:i*** *einai*]
Every.DAT become.3.SG ruler.DAT prudent.DAT to be
'It becomes every ruler to be prudent' (Xenophon, *Hipparchicus* 7.1)

(40) *Ho:s* ***agathois*** *te* [***humin*** *prose:kei*] *einai*
As brave-DAT.PL and to-you.DAT.PL become.3.SG to be
'For it is your right to be brave men' (Xenophon, *Anabasis* 3.2.11)

(41) [***soi*** *prose:kei*] *genesthai emoi (. . .)* ***eraste:***
to-you.DAT.SG become.3.SG to become me.DAT lover.DAT.SG
'It will be better for you to become my lover' (Plato, *Phaedrus* 233a)

As with *exesti* above, *prose:kei* can also be accompanied by an infinitival clause demonstrating AcI as seen in (42) below:

(42) *Prose:kei de tois men allois* [*ekeine:n te:n pole:n*
Is-natural.3.SG then the then others.DAT that.ACC the.ACC city.ACC
stergein] [***se*** *de apasan te:n Helladan patrida*
to crave you.**ACC** then all.ACC the.ACC Greece.ACC fatherland.ACC
nomizein]
to consider
'It is only natural for the other to cleave fondly to that state while you consider the entire Greece as your fatherland' (Isocrates. 5 127)

The last three examples of this section show exactly the same phenomenon with other verbs that have an impersonal syntax and are accompanied by a dative and an infinitive. Example (43) (from Andrews 1971, his example (18b)) illustrates dative case transmission with *sumbainei* 'happens', example (44) illustrates it with *dokei* 'seems' (cf. section 3.1) and finally (45) illustrates it with *prepei* 'becomes' (from Goodwin 1894: 203):

(43) *Sumbebe:ke* ***tois proeste:kosi*** *heautous*
It-has-happened.3.SG those-with-power.DAT.PL themselves.ACC.PL
pro:tous ***peprakosi*** *aisthesthai*
first.ACC.PL having.sold.DAT.PL to perceive
'It has happened to those in power to perceive that they have sold themselves first of all' (Demosthenes. 18. 46)

(44) *Edoxen* ***hautois*** ***exoplisamenois*** *proienai*
Seem.3.SG.PST to-them.DAT.PL armed.DAT.PL to push forward
'It seemed to them to push forward armed' (Xenophon, *Anabasis* 2.1.2)

(45) *Prepei* ***soi*** *einai* ***prothumo:i***
Become.3.SG to-you.DAT to be zealous.DAT
'It becomes to you to be zealous'

To summarize the data above: AG illustrates the possibility of dative case being transmitted to null infinitival subjects in environments where infinitives function as subjects of impersonal verbs. These are environments that bear the NOC signature *par excellence* according to Landau (2013). The only possible conclusion from this data is that AG marks NOC with exactly the same mechanism as it does OC: case transmission. The existence of case transmission in NOC is entirely unexpected under the Agree theory of control, if, by analysis, NOC does not depend on Agree. Recall that according to Landau (2000), PRO in NOC receives its interpretation under complex pragmatic conditions, but crucially not through Agree. So, we could either argue that NOC is also mediated by some type of Agree in Ancient Greek (unlike in other languages where this is not possible) or we could argue that there is a different operation at play here, one that crucially results in the same phenomenon that Agree does: case transmission. We will come back to this in section 4.

The second NOC environment that we will discuss in this section involves long distance control. Consider the following example:

(46) ***Ho de Alkibiades*** *(...) dokein tois Athe:naiois*
The then Alcidiades.NOM to seem.INF the Athenians.DAT.PL
ebouleto me: ***adunatos*** *einai peisai*
want.3.SG.AOR not unable.**NOM** to be.INF.PRES to persuade.INF.FUT
'Alcibiades did not wish the Athenians to think that he was unable to persuade (him)'
(Thucydides, *Historia* VIII 56.3)

A linear representation of example (46) (omitting irrelevant details) in addition to a schematic representation of the control relationship is illustrated below:

(47) a. [***Ho Alkibiades*** *ebouleto* [*me: dokein* *tois Athe:naiois* [
[**Alcibiades-NOM** wanted [not to think the Athenians-DAT [
adunatos *einai* [*peisein*]]]]
unable-NOM to be [to persuade]]]]
b. DP $_{i\ \text{NOM}}$ ... T/V ... [Inf_1 ... DP $_{j\ \text{DAT}}$ [$\text{PRO}_{i\ \text{NOM}}$ ... Inf_2 ... Pred_{NOM} [... Inf_3 ...]]]

In this example the main clause subject manages to control an infinitival subject embedded twice within, being somehow blind to the intervening infinitival clause which has a distinct dative argument. The dative argument does not only manage to not block the control relationship but it also cannot block the case transmission that is evident between the controller *Alcibiades* and the adjectival predicate

adunatos. Although these examples are found extremely rarely in the corpus (by the mere complexity of them if nothing else), also consider the following example:

(48) ***Outosi*** *te oietai* [*dein* [***atho:os*** *einai*]]
He.**NOM** and think.3.SG.PRES to must.INF innocent.**NOM** to be.INF
'He thinks that he should get off unscathed'
(Demosthenes, *Against Phormio:* 46)

Here, again, the nominative controller *outosi* manages to establish both a control configuration within a clause twice embedded but also, again, this is manifested through case transmission to the adjectival predicate *atho:os*. These data, perhaps more than any other, seem to strike a decisive blow to the long-standing association of case transmission with OC. When analysing all the data where case transmission is found in Ancient Greek, it will be important to account for the non-local character of this operation.

If our analysis of the data is on the right track, then NOC is the third environment after control (OC) and raising-LDA in which AG utilizes the case transmission strategy. In the next section, we see the final environment where case transmission is used as a morphological means of identity of reference: control into adjuncts with overt complementizers.

3.3 Control into adjuncts (with overt complementizers)

Control into adjuncts has always been analysed as a marginal case of control that is not easily incorporated within mainstream analyses.[15] The problem that it poses theoretically is obvious: how can an antecedent control within a clause that it does not select or c-command, even more disturbingly in the presence of an overt complementizer? Ancient Greek is a language that has two types of infinitival adjunct clauses: temporal and result clauses.[16] Both are obligatorily introduced by complementizers *prin* 'before' and *ho:ste* 'so that', as complementizers cannot be omitted in Ancient Greek. In the following two examples we look into temporal infinitival adjunct clauses.

(49) *All' estai dikaioteros he: prin genesthai* ***akrate:s***
But be.3.SG.FUT more-just.NOM than before to be.INF.FUT powerless.**NOM**
'But we will be more just than before becoming powerless'
(Aristotle, *Ethica Eudemia:* 1223.23)

15 Of course this is not the case within the movement theory of control, where Boeckx & Hornstein (2004), for example, argue that control into adjuncts is an instance of sidewards movement. I want to thank an anonymous JHS reviewer for pointing this out to me.

16 As a matter of fact, Landau (2000, 2013) points out that temporal clauses are VP-external adjuncts, while result clauses are VP-internal adjuncts. If this is on the right track, then, by definition, temporal clauses are also environments of NOC.

(50) *Ho de arre:n genna:i men hoktame:nos, phaula mentoi*
The then male.NOM gives-birth then eight monthly.NOM easily
prin genesthai ***eniausios***
then before to be.INF.FUT one-yearly.**NOM**
'The male gives birth in eight months, easily then before becoming one year old' (Aristotle, *Historia Animalum*: 543)

Both examples (49) and (50) illustrate that even in temporal clauses with an overt complementizer, *prin*, control is morphologically signalled by case transmission, evident on the adjectival predicates *akrate:s* and *eniausios* respectively, both surfacing with nominative case and consequently illustrating that the null infinitival subject is also nominative. The same situation is observed in the example below with a result clause.

(51) *He: men apo te:s thalasse:s aura eis polun topon*
The.NOM then by the.GEN sea.GEN wind.NOM in large.ACC space.ACC
skidnatai [*ho:ste einai* ***asthene:s***]
disperses.3.SG.PRES so-that to be.INF weak.**NOM**
'The breeze from the sea disperses in a large space, becoming weak' (Aristotle, *Problemata:* 910: 35)

In example (51) above we observe case transmission within a result clause introduced with the complementizer *ho:ste*. In this case, control is also morphologically signalled by case transmission, evident on the adjectival predicate *asthene:s*, surfacing with nominative case and consequently illustrating that the null infinitival subject is also nominative.

This was the final environment in which we can observe case transmission in Ancient Greek. In the next two subsections we will (a) present some data that seem not to conform to our generalizations so far, and (b) discuss data from Russian and Icelandic that will help us present a more rounded cross-linguistic picture and sharpen our theoretical question.

3.4 Exceptions to the generalization

So far, the empirical generalization regarding AG is that it uses case transmission in any environment where the infinitival subject can be co-referential (through movement or through agreement) to an argument from the main clause:

(i) OC

(ii) Raising/LDA

(iii) NOC [subjects of impersonals; long-distance control]

(iv) Control into adjuncts

In this section we will discuss some exceptions to our empirical generalization so far, where case transmission signals co-reference. The exceptions are not instances of case transmission allowing disjoint reference, a possibility that is never attested in the data; they are exceptions where an accusative is available in the infinitival clause, although the subject is co-referential with an argument in the main clause. Consider the following example taken from (Landau 2009: 269 ex. 2a):

(52) *Houtoi edee:the:san* ***Athe:naio:n*** [*sphisi* ***boe:thous***
They.NOM asked Athenians.**GEN** them.DAT assistants.**ACC**
genesthai]
to become
'They requested the Athenians to become their assistants.'
(Herodotus, 6, 100)

In example (52) above, the null subject of the infinitival clause is revealed to be accusative by the case of the adjectival predicate *boe:thous* 'assistants'. This is unexpected as it refers to the object of the main verb, *Athe:naio:n* 'Athenians', which surfaces in the genitive case and would be perfectly capable of licensing case transmission (as seen in example (9)). Such examples are reported also in Andrews (1971), Quicoli (1982) and Wyngaerd (1994). A similar example is the following, this time with a dative controller:

(53) *Lakedaimoniois exesti* ***humin philous*** *genesthai*
Lakedemonians.DAT.PL is-possible you.**DAT**.PL friends.**ACC**.PL to be
bebaio:s
of-course
'Of course it is possible for you to become friends of the Spartans.'
(Thucydides, *Historia IV:* 20, 3)

Similarly to (52) above, the null subject of the infinitival clause is revealed to be accusative through the case on the adjectival predicate *philous* 'friends'. This is unexpected as it refers to the dative argument of the main verb, *humin* 'you', which would be perfectly capable of licensing case transmission (as we have seen extensively that it does in examples (35)–(37) above).

Landau (2008, 2009) makes specific reference to these examples, and takes them to provide empirical arguments for the second route to control, where PRO does not directly agree with its controller and the control relation is mediated through C instead. In particular, based on such examples, Landau (2008) argues that Ancient Greek is a language with 'non-uniform case transmission'. More specifically case transmission is argued to be 'optional' in the C control configurations in Ancient Greek (and Russian – to which we will come back in the next section). His proposal argues that case transmission is uniform with nominative (subject) controllers in both Ancient Greek and Russian, but optional elsewhere.

Regarding the particular examples above, Landau treats both of them as an indication that *object* control is less robust than subject control in Ancient Greek.[17]

However, traditional grammars analyse these examples under a different light. In particular they are treated as exceptional on two fronts: firstly, regarding the nature of genitives as controllers, and secondly, regarding the possibility of exceptionality of agreement with nouns and participles (but not with adjectives). There is also a specific reference on the diachrony of case transmission between Homeric and Classical Greek. We will get into these in turn in the rest of the section, but first we will analyse example (53) in some detail. Liddell & Scott (1940) discusses this specific example as an exception of the syntax of *exesti*, where the adjectival predicate of the infinitive appears with accusative 'instead of second dative' exactly because there is another dative in the infinitival clause, the dependent nominal *Lakedaimoniois* translated as a complement of *philous* 'friends of the Spartans'. Given that accusative can be in principle available within the infinitival clause these examples can be analysed on a par with (7) that involves an accusative small *pro*. We will come back to this as a possible analysis of the 'exceptional' cases in section 4.

Goodwin (1889) reports that genitive controllers seem to be less successful at inducing case transmission than other cases (such as nominative or dative). If our analysis is on the right track, and case transmission is parasitic on Agree, and also given that only structural cases can participate in Agree, examples like (52) could be an argument for a non-uniform analysis of Ancient Greek genitives: specifically, that some are structural, and as such can participate in Agree and transmit their case, and some are inherent (analysed as embedded inside a PP, á la Řezáč 2008) and as such cannot participate in Agree and cannot transmit their case. This is on a par with analyses of genitives and datives cross-linguistically that treat datives (and often genitives) as mixed cases, structural and inherent within the same language and/or cross-linguistically (cf. Harley (1995) for Japanese, Webelhuth (1995) and Fanselow (2000) for German, and Anagnostopoulou & Sevdali (2012) for Ancient Greek datives, among others). We will come back to what case transmission reveals for the nature of oblique cases in Ancient Greek in section 4.

Another issue that seems to play a role in the possibility of case transmission is the category of the predicate of the (infinitival) copula and in particular whether it is an adjective, a noun or a participle. Specifically, Smyth (1920) and Vasileiou (2001) argue that case transmission is robust when the predicate is an adjective but exceptional when it is a noun or a participle[18]. Note that both examples (52) and

17 Note that for Landau (2009), *exesti* would be an object control verb. It is not clear to us (a) how the dative experiencer can qualify as an object, (b) how the relevant configuration cannot be regarded as NOC, for all the reasons that we outlined in 3.2 whereby the infinitival clause functions as the subject of *exesti*.

18 This observation as it stands is descriptive and does not follow from anything in the approach that will be proposed here. While a better understanding of agreement patterns across categories is indeed a desideratum of any theory of agreement (cf. Baker 2008 for a proposal) it lies beyond the scope of

(53) involve case transmission to a noun.

Finally, and perhaps most significantly, (Chantraine 1953: 313) (as reported also in Creider & Hudson 2003) argues that the relative frequency of case transmission increased from Homer to Attic authors when it appears to be in general obligatory. Chantraine goes as far as arguing that examples like the ones discussed in this chapter are *ungrammatical* in Attic authors. Both Herodotus and Thucydides (the authors of examples (52)–(53)) lived and wrote on the 5th century BC but their language is fairly learned and archaic and can be argued to mirror an earlier version than the one spoken in Classical times, as argued also by Dionysius of Halicarnassus.

To sum up this section: earlier analyses of the case transmission phenomenon, most notably Landau (2009), argue that Ancient Greek is a language that exhibits optional, non-uniform case transmission, contra to what we have shown in sections 3.1–3.3. The examples that are crucial to this approach were presented in (52)–(53) and showed control not accompanied by case transmission. In our discussion we provided evidence from the literature that treats such instances as exceptional in terms of:

(i) The case of the controller.

(ii) The category of the element that manifests case transmission inside the infinitival clause.

Moreover, we presented the view that these examples illustrate an earlier instance of case transmission in Greek and were becoming unacceptable in Attic, Classical authors. This change could be related to the diachrony of the nature of cases such as genitive and dative in Greek (cf. Humbert 1930, Conti 1998) from inherent in Homeric times to structural in Classical times. This however does not mean that we should not provide an analysis of case transmission that takes into account cases like those presented here. We will come back to this in section 4 where we analyse these 'exceptional' anti-case transmission cases on a par with accusative small *pro* cases that exist independently in Ancient Greek.

3.5 Some cross linguistic comparisons: Russian vs. Icelandic

Before we go into our analysis of case transmission in Ancient Greek, we will briefly present two languages that complement the Ancient Greek pattern: Russian[19] and Icelandic. Both these languages have the availability of case transmission and case independence but they do not behave like Ancient Greek with respect to the environments that license the one and the other.

this paper.

19 I want to thank Alison Henry for pointing out to me first the potential importance of the Russian data.

Russian is a language with a case transmission mechanism arguably similar to Ancient Greek[20] that behaves in an interesting way. Russian is notorious for its intricate case system and predicate agreement is no exception. Bailyn (2001, 2011) presents the following on subject-predicate agreement in Russian (his example (8) from the 2001 paper):

(54) a. *Ivan – durak*
Ivan.NOM fool.NOM
'Ivan is a fool'

b. * *Ivan – durakom/duraka*
Ivan.NOM fool.INSTR/GEN
...
etc.

c. *Ivan – glup(yj)*
Ivan.NOM stupid.NOM
'Ivan is stupid'

d. * *Ivan – glupym/glupogo*
Ivan.NOM stupid.INSTR/GEN
...
etc.

The paradigm above illustrates that Russian 'primary' predicates (standard adjectival predicates) allow only for case 'sameness', aka case agreement with the subject. The other option that is available in Russian secondary predicates, where the predicate surfaces in instrumental case, is ungrammatical in these constructions (cf. (54)b and (54)d above). Curiously, in raising constructions, only the instrumental option is available, and the 'case sameness' is ungrammatical[21] (Bailyn 2001, ex. 33):

(55) *Sašai kažetsja* [t_i *durakom*]
Sasha.**NOM** seems fool.**INSTR**
'Sasha seems to be a fool.'

(56) *Ja sčitaju ego$_i$* [t_i *durakom*]
I consider him.**ACC** fool.**INSTR**
'I consider him a fool.'

In example (55), a classic raising-to-subject construction, the nominative fails to transfer to the downstairs predicate, resulting in the instrumental instead. In example (56), a raising-to-object construction, it is the accusative that fails to transfer. Bailyn (2011) argues that the difference between the two patterns lies in the effect of PredP that is present in examples like (55) and (56) but not (54). In his own words, (Bailyn 2011: 193) argues that:

> '[i]nstrumental manifests the active case feature on the functional head Pred in Russian, unless it is absorbed by overt material, in

20 As a matter of fact, Landau (2008, 2013) argues that Ancient Greek behaves *identically* to Russian with respect to case transmission in control environments as well: according to him, case transmission is obligatory in subject control and optional in object control. Sevdali (2007, 2013) illustrates that the case transmission mechanism in control is much more robust than assumed by Landau. Case transmission in raising as discussed here is another aspect where Ancient Greek and Russian diverge.

21 This has been also confirmed to me by Igor Yanovich and Pavel Iosad (p.c.).

which case Multiple Agree, an independently available mechanism, creates the sameness of case phenomenon.'

Leaving the specifics of the analysis to the side, Russian, unlike Ancient Greek, is a language where raising and control diverge with respect to the case transmission phenomenon. Landau (2008) illustrates case transmission in subject control in Russian with examples like the following (his example (12) which is directly comparable to the Ancient Greek example (8) above):

(57) *Kostja obeščal* [PRO *prijti odin*]
Kostja.NOM promised PRO.NOM to come alone.NOM
'Kostja promised to come alone.'

The other two environments that we discussed in this paper, namely control into an adjunct clause with an overt complementizer and NOC, are illustrated in the following examples from Landau (2008) (his (13c) & (13e) respectively):

(58) *Ljuda priexala* [*čtoby* PRO *pokupat maslo samoj*]
Ljuda.**NOM** came in order PRO.**DAT** to buy butter herself.**DAT**
'Ljuda came to buy the butter herself.'

(59) *Ivan dumaet čto* [PRO *pojti domoj odnomu*] *važno*
Ivan.**NOM** thinks that PRO.**DAT** to go home alone.**DAT** important
'Ivan thinks that to go home alone is important.'

As is evident from the data above (which are the direct equivalents of Ancient Greek examples (51) and (48) respectively), Russian and Ancient Greek further diverge: while the former marks these environments with case independence (which is dative for Russian) the latter does so with case transmission, which seems to be a very widespread option in Ancient Greek.

Let us now move on to another language that has the availability of case transmission in addition to case independence: Icelandic. In the rest of the section we will present the properties of Icelandic as described in detail by Sigurðsson (2008). As we saw in (2) Icelandic has the possibility of a case-marked PRO, in a case that is independently available within the infinitival clause (which is either nominative in Icelandic, or some quirky case that is lexically determined by the infinitival verb). As a matter of fact control most often does *not* entail case transmission in Icelandic, as shown in Sigurðsson (2008) (his example (4)).

(60) a. ***Ólaf*** *langar ekki til* [*að* PRO *vera* ***ríkur***]
Olaf.**ACC**.MSC.SG longs not for to be rich.**NOM**.MSC.SG
'Olaf doesn't want to be rich.'

b. ***Óla****fi* *finnst gott* [*að* PRO *vera* ***ríkur***].
Olaf.**DAT**.MSC.SG finds good to be rich.**NOM**.MSC.SG
'Olaf finds it nice to be rich.'

Instead, PRO bears uniformly nominative case in both examples above, despite the fact that its controller bears accusative case in (60)a and dative in (60)b. This is in stark contrast to the situation in AG, where PRO *must* bear the case of the element it refers to. Raising in Icelandic, on the other hand, is manifested with case percolation (or case preservation)[22] where the moved DP appears in the domain of the main clause, bearing the case available to it from the embedded clause. This is illustrated in (61) below from Sigurðsson (2008) (his example (40)b), where the dative on the raised DP *mönnunum* is quirky and is related to the embedded predicate *hjélpað* and not the main raising predicate *virðist*:

(61) *Mönnunum/*Mennirnir virðist báðum* [*∅ hafa verið hjélpað*]
Men.the.**DAT**/*NOM seem both.**DAT** to have been helped
'The men seem both to have been helped.'

As a matter of fact the properties of Icelandic with respect to control, raising and case transmission are almost the mirror image of Ancient Greek and can be summarized as follows:

(i) Icelandic behaves differently in raising and control with respect to case transmission (≠ AG).

(i) Icelandic has both case transmission and case independence in control contexts (≠ AG, bar exceptional cases in 3.4 above)

(i) Case independence is by far the most common strategy (≠ AG)

(i) Case transmission is possible only with object control (where accusative gets transmitted (≠ AG)

(i) There are 'no discernable semantic effects or correlates' with respect to the choice between case transmission and case independence (≠ AG)

In order to account for the situation in Icelandic, Sigurðsson has to make the following assumptions: (a) PRO is a reference and *phi*-feature variable (much like overt pronouns and anaphors); (b) PRO-infinitives are Person-deficient and their structure involves separate Person and Number heads within their I-domain (Sigurðsson 2000 *et seq.*); (c) PRO is a probe that targets a matrix argument to get reference; (d) DPs are Person phrases (Platzack 2004). The effects of what we might perceive as case transmission and case independence in Icelandic are accounted for by attributing to 'Person (…) some properties that have been commonly attributed to Case and EPP' (Sigurðsson 2008: 441). In particular, case transmission is viewed as a post-syntactic 'drip-down' from NP to PRO and subsequently to the infinitival predicate. The possibility of case independence of PRO is always available, and is

22 For an interesting exception to this, where case percolation is also a marginal option in OC infinitives in Icelandic, see also Landau (2008), footnote 5.

the most common option. It is, however, clear that case transmission in Ancient Greek cannot be reduced to a mere availability of the system: case transmission in AG is the means through which the embedded subject gets its Person specification. We will come back to the significance of Person and its relationship to case in AG in the next section.

The final data that we need to present have to do with control in NOC, and control in an adjunct with an overt complementizer. We will first look into NOC, and in particular long distance control, which would be directly comparable to the Ancient Greek data presented here. As it turns out, Icelandic does not force case transmission with long distance control. This is fairly unsurprising as Icelandic does not even force case transmission to OC either. The relevant example is below, from Sigurðsson (2008) (his example (73)):

(62) ***Ólaf*** *langaði til að* PRO *verða boðið að* PRO *verða*
Olaf.**ACC**.MS.SG longed for to be offered.DFT to be
getið í ræðunni til að PRO *verða* ***vinsæll***
mentioned.DFT in speech.the for to become popular.**NOM**.M.SG
'Olaf wanted to be offered to be mentioned in the speech to become popular.'

In the above example, the controller *Ólaf* that surfaces in the accusative case does not manage to transmit its case to the innermost infinitival subject, and therefore the adjectival predicate *vinsæll* surfaces in the infinitive-internal case, nominative. Regarding case transmission across a complementizer, consider the following two examples from Landau (2008: his (74)a and (74)b) who reports the following facts (attributed to Sigurðsson p.c.). Icelandic has the infinitival complementizer *að* that optionally introduces infinitival clauses, and a question would be to see whether the presence of the complementizer plays any role in the possibility of case transmission.[23]

(63) *Þeir töldu Harald* PRO *vilja verða ríkan/??ríkur*
They believed Harold.ACC PRO to want to be rich.ACC/??NOM
'They believed Harold to want to be rich.'

(64) *Þeir töldu Harald* PRO *aetla að verða ríkan/??ríkur*
They believed Harold.ACC PRO to intend to to be rich.ACC/??NOM
'They believed Harold to intend to be rich.'

The examples above involve two subject control verbs (one that licenses complementizer drop and one that doesn't) embedded under ECM predicates to test whether accusative can or cannot be transmitted. The examples above are inconclusive with respect to case transmission across a complementizer or not. Com-

23 NB, these environments do not illustrate the possibility of control into adjuncts, but control across a complementizer instead.

bining, therefore, the Ancient Greek data with Russian and Icelandic[24] from this section, and limiting our discussion to subject control (which is more uncontroversial), the paradigm that emerges is as follows:

	Raising / LDA	**OC**	**NOC**	**Control into adjuncts/across complementizers**
Icelandic	Case percolation	Case independence (nominative)	Case independence (in arbitrary NOC)	?
Russian	"Default" case (intrumental)	CASE TRANSMISSION	Case independence	Case independence
Ancient Greek	CASE TRANSMISSION	CASE TRANSMISSION	CASE TRANSMISSION	CASE TRANSMISSION

Table 1 Case agreement patterns in raising, OC, NOC and control into adjuncts in Icelandic, Russian, and Ancient Greek

What is immediately apparent from the table above is the many ways in which languages can behave differently from each other, even when they have otherwise similar properties. Russian, Icelandic and Ancient Greek all have independent case for their infinitival subjects. Also, all three of them have the option of case transmission in addition to that of case independence (and Icelandic also has the extra option of case percolation). All three of them, though, seem to pose different restrictions in the availability of the case transmission phenomenon, restrictions that in the literature have been reduced to the nature of case in each language, among other things. In this mini-typology, Ancient Greek presents a novel challenge: how can case transmission obtain in apparently non-local, and configurationally profoundly distinct, environments? An attempt to address this question is the role of

24 Another interesting comparison would involve patterns of case transmission in Polish and Czech. According to Bondaruk (2004) and Przepiórkowski (2004) the two languages also display case transmission; interestingly, though, while Polish and Czech allow case transmission in both control and raising constructions, they pose some different constraints: while subject control is always manifested through case transmission, object control is not. And perhaps even more interestingly, non-nominative subjects also cannot transmit their case. In all of the above cases, null infinitival subjects surface with instrumental case. Polish and Czech slice the pie differently again, and mark (nominative) subject control and raising alike, while keeping object control, long distance control, arbitrary control and disjoint reference separate. We will not discuss these data here for reasons of space, but they should be included in any substantial further research on the complete cross-linguistic patterns of case transmission.

the following section.

4 Case Transmission Across the Board

4.1 An empirical generalization and the ingredients of the proposal

So far we have established the following empirical generalization from the Ancient Greek data, regarding the function of the case transmission operation:

(65) THE CASE TRANSMISSION GENERALIZATION:
Whenever the infinitival subject gets its reference from an argument in the main clause, it copies the case of that argument.

The environments that we have identified in this paper are:

i. OC
ii. Raising/LDA
iii. NOC [subjects of impersonals; long-distance control]
iv. Control into adjuncts

There are some exceptions to this generalization, when a null infinitival subject apparently marked with accusative case (normally reserved for *phi*-independent subjects, Sevdali 2013) can refer to an argument in the previous clause and *not* copy its case (cf. section 3.4). While we have argued that this is truly an exceptional case and not a productive alternative to case transmission, it is nonetheless something that needs to be captured by our analysis as well.

As we have mentioned already, previous analyses of case transmission have linked the phenomenon solely to OC, and in particular to PRO-control that is established through Agree. This has been the position advocated by Landau (2008) in analysing the Russian data, where case transmission is arguably reserved only for subject control. When discussing the Icelandic data, where case transmission is only a possibility within object control, Sigurðsson (2008) argues that it is a post-syntactic operation, some form of 'drip-down' from NP to PRO and subsequently to the infinitival predicate. The AG data show that we need an operation for case transmission that can be extended far beyond OC. In the analysis that we want to propose, we want to maintain the intuition that case transmission is an epiphenomenon of some type of agreement operation between a matrix DP and the null infinitival subject. The problem with extending an Agree-based analysis to all of the Ancient Greek environments presented in this paper is the apparently non-local, non-obligatory character of these environments that goes against what would normally be associated with an operation like Agree that is both local and strict (Chomsky 2000, 2001). However, we know that locality restrictions on Agree can be circumvented in certain environments. In the remainder of this section we

will review the existing Agree-type models of control, and see whether they can be extended to account for our data also.

The mainstream analysis of control through Agree is of course that of Landau (2000) et seq. In a nutshell, he argues that OC is always achieved through Agree, but there are crucially two routes to control: PRO-control and C-control. The first possibility is the only one that can give rise to case transmission. The availability of these two routes to control gives rise to the observed cross-linguistic variation. In his approach, Landau argues that the Agree operation is between a matrix Probe and two Goals: firstly matrix T/light *v*/vAPPL enters an Agree operation with a DP in the main clause (subject or object respectively) and then it further agrees with a second, embedded Goal. The goal of the second Agree is either PRO (in PRO-control) or (embedded) AGR (in C-control). Co-indexation between the matrix probe with both PRO and the controller produces the bound variable reading. There are two important consequences of this analysis. Firstly, it is clear that only DPs that are active for Agree within their main clause can also Agree with (and consequently transmit case to) PRO. In other words, only DPs that receive structural case can transmit their case to PRO. The second consequence has to do with which element acts as a Probe. In Landau's system, the Probe is a functional element in the matrix clause. This does not reflect the deficient character of PRO, its nature as a reference and *phi*-feature variable (Sigurðsson 2008) that is active and needs reference (and *phi*-features and case). We will come back to this last issue in section 4.2.

In order to account for the AG data, the natural thing to do would be to try to extend Landau's analysis to the environments presented in this paper: raising/LDA and NOC and control into adjuncts. In doing so we would have to find ways to circumvent locality restrictions on Agree (in the cases of long distance control and agreement and control into adjuncts). More importantly, though, we would need to find a way to analyse raising and LDA on a par with control, something that Landau has always forcefully resisted. Provided that there are good theoretical reasons to keep these three environments distinct and not combine them into one (as the movement theory of control does, cf. Hornstein 1999 and much subsequent work) we need to find another way to account for their apparent similarity in AG. Landau has never provided an analysis for raising; instead he has always assumed some type of movement analysis for it that would keep it firmly apart from control that utilizes Agree. As a matter of fact the distinct morphological realization of case patterns in raising and control configurations (illustrated in Table 1 for Russian and Icelandic), 'the[ir] fundamental asymmetry', has been for him 'a strong argument against collapsing the two grammatical constructions' (Landau 2008: 881; Landau 2003). This is however the quintessential puzzle that Ancient Greek poses: raising/LDA and control (OC and NOC) *do not* illustrate any 'fundamental asymmetry'; instead, they behave identically at least with respect to case transmission. To achieve a unified analysis for the two phenomena we will initially revisit Borer's

(1989) analysis of control.

Borer (1989) was an extraordinary analysis in the longstanding debate on control. Variants of her analysis have been at the forefront for a long time and the insight that she offered still surfaces in some shape or form in a lot of current analyses (most notably Landau's C-control). Borer proposed that control is indeed akin to binding involving an anaphoric element, but that element is AGR and not PRO itself. AGR is an N-type element that can be anaphoric or not. When it is (in control clauses) it needs to be bound by another +N element in the main clause. The infinitival subject is invariably small *pro* and the effects of control are manifested when *pro* gets identified through an anaphoric AGR. In arguing this, Borer dissociates fully control from the nature of finiteness, and argues that 'control effects are not restricted to, or derived from, the status of pronominal anaphors' (Borer 1989: 69). Evidence from her proposal comes from a variety of sources including control into adjuncts (gerunds), emphatic pronouns, and controlled null and overt subjects in tensed contexts. In sum, Borer's analysis argues that PRO should be eliminated from the theory and control effects are adequately explained by binding conditions, assuming that AGR in infinitives and gerunds is anaphoric in the usual sense, abiding in some form of Principle A. The anaphoric AGR system is very promising for the AG data presented in this paper, not least because it is predicted to extend to account for cases of NOC, similar to the ones found in AG. For Borer there is nothing that stops NOC from appearing with the same morphological instantiation as OC. The difference between raising and control clauses in Borer's system is reduced to a different subcategorization frame of the main verb. More importantly, however, attributing the anaphoric nature of control to a clausal head, in Borer's case AGR, is the most important ingredient that we will need in our attempts to account for all three environments found in this paper. All clauses have an AGR head, and arguably it can be anaphoric in a variety of environments. If binding of AGR can be reduced to Agree (following also recent work by Gallego 2010, 2011 who argues that control is binding and both control and binding are done through Agree) then we can find a way to account for the three environments of case transmission in AG. Before we do that, we need to look into Sigurðsson (2008) who argues in favour of reinterpreting AGR as Person.

Sigurðsson (2008) retains the category PRO and argues that it is 'a reference and a *phi*-feature variable' (similar to Gallego 2010, 2011, who argues that PRO is some kind of defective nominal). Further to this he argues that Person is a clausal head, a 'syntactically active category' that has some of the properties that have commonly been attributed to 'Case'. Case for him is solely a post-syntactic category, assigned in morphology. Sigurðsson further adopts Platzack's (2004) 'Person phrase hypothesis' where arguments are analysed as Person heads, envisaged as expanded DPs. Agreement originates as the head of a Person phrase and can remerge with the rest of the clausal heads leaving the rest of the DP stranded. The Sigurðsson-Platzack architecture of the clause is represented below:

(66) [CP … [PnP … [NumP … [TP …]]]]

Person in infinitives can be inherently defective and in those cases it cannot be matched by a locally spelled out DP. Now, consider what would happen if we combined the Borer approach with the Sigurðsson-Platzack approach: clauses can be observed to have different properties depending on the feature specifications of their Person heads. Clausal Person is (or can be) 'a reference and a *phi*-feature variable' that needs valuation from outside the infinitival clause. This amounts to saying that the Person head of infinitival clauses (and possibly other 'defective' clauses) needs reference and *phi*-features. This would mean it has the following possible feature bundles [±deficient], [±anaphoric]. This is reminiscent of Borer's feature specification of AGR, which involved (among others) features such as [±ident], [±anaphoric]. The existence of both of these features on Person ensures that there exist deficient Person heads that are non-anaphoric, and anaphoric Person heads that are non-deficient, dissociating the valuation of *phi*-features from reference. This will become crucial when we seek to identify the distinction between raising/LDA and control infinitives. The availability of independent case for the infinitival subject vs. case transmission can now be analysed as a reflex of internal or external valuation of the Person head.

Adopting the existence of a clausal head like Person that can be specified as [±deficient] (relating to *phi*-feature availability from within the infinitival clause or not) and [±anaphoric] (relating to availability of independent *reference* from within the infinitival clause or not) is the first step towards analysing the Ancient Greek data. Another proposal that we will have to adopt is that of Sevdali (2013) on strong and weak phases at the C level. According to this proposal strong and weak phasehood on the C level correlates with [±EPP] and [±edge] features on C. Sevdali (2013) argued for strong and weak phases on the C level to account for the availability of *phi*-independent, accusative subjects within infinitival clauses. In our analysis, we will also make reference to the notion of a weak phase as a domain to which Agree can be extended.

4.2 Case transmission and the role of Person

In the previous section we outlined the core assumptions of our proposal whereby the effects of OC, NOC, and LDA/raising can all follow from the specification of features on the embedded Person head, such as [±deficient], [± anaphoric]. The theoretical appeal of this proposal is that it can *link* control to raising in languages where they employ the same means (such as AG) but *does not collapse* them entirely, as there are a lot of syntactic and semantic reasons not to do so. In this section we will outline the mechanics of our approaches in the environments that we have identified and go through the derivations in detail. We will then see an interesting set of data from AG that confirm the analysis and we will finally outline the cross-linguistic picture that emerges. Finally we will address the cross-linguistic rarity of

the AG case.

4.2.1 Raising / LDA

We will start with proposing the feature specification of C and Person heads in the raising/LDA cases. Recall that the data that we need to account for are:

i. Unraised DPs (independent accusative case available within the infinitival clause).
ii. Raised DPs (nominative case transmission).
iii. LDA (nominative case transmission).
iv. LLDA – long LDA across a dative (nominative case transmission).

Let's start with the LDA cases, where the feature specification of the embedded C and Person heads are as follows:

(67) LDA IN AG:
C [−EPP / −edge], Person [+deficient / −anaphoric]

The derivation proceeds as follows: the embedded Person is deficient, without the possibility of licensing a *phi*-independent subject, but not anaphoric, because the subject gets reference from within the embedded clause (and is theta marked by the embedded predicate). The embedded CP is a weak phase, lacking an edge feature and an EPP feature, and therefore functions as a domain transparent for operations from the outside. By virtue of the embedded clause being a weak phase, accusative is not available and the embedded subject cannot surface with independent case. The derivation proceeds to the main clause and case on the embedded subject is assigned post-cyclically as a reflex of agreement between matrix T and embedded DP in the next Phase. The main clause T does not have an EPP feature and as a result does not force movement of the embedded DP into the main clause and agreement takes place in situ. Cases of LDA look like the following:

(68) $\ldots \underset{\text{Agree}}{\text{T}} \ldots [_{\text{CP}}\ \text{DP}_{\ i\ \text{NOM}} \ldots \text{Inf} \ldots \text{Pred}_{\text{NOM}}]$

Moving over to raising in Ancient Greek, we are proposing a fairly standard approach as put forward in Chomsky (2000, 2001), whereby the feature specification of the embedded C and Person heads are as follows:

(69) RAISING IN AG:
C [−EPP / −edge], Person [+deficient / −anaphoric]

In other words, the embedded clause in raising and LDA configurations has exactly the same properties: it can license *phi*-deficient but non-anaphoric subjects and is a weak phase that allows operations to affect it from the outside. The only

difference is that main clause T *does* have an EPP feature and as a result forces movement of the embedded DP into the main clause. The embedded DP subject moves then into the main clause, and receives case in its final, target position. Case is assigned on the head of the chain (unlike in instances of case percolation in Icelandic, cf. example (61)) and case is also transmitted to the copy of the moved DP in the infinitival clause, and as a result also on the adjectival predicate. Raising cases look like the following:

(70) DP $_{i\ \text{NOM}}$ … T … [~~DP~~ $_{i\ \text{NOM}}$ … Inf … Pred$_{\text{NOM}}$]

Finally the feature specification of C and Person heads of a non-raising construction is as follows:

(71) Unraised DPs in AG:
C [+EPP / +edge], Person [−deficient / −anaphoric]

The embedded C head has both edge and EPP features that makes it a strong phase. As such it has the availability of accusative case from within the infinitival clause. The Person head is non-deficient and non-anaphoric, licensing a *phi*-independent subject. In all relevant respects this environment looks a lot like an English finite embedded *that*-clause that alternates with infinitives in English raising. In Ancient Greek the difference in the feature specification of infinitival clauses involved in raising and LDA and (71) above is only visible on the case of the infinitival subject: accusative (independent case) vs. nominative (transmitted case) and not on the finiteness of the verbal form (marked with italics) or the existence of a complementizer (bold) as in the classic English minimal pair as in (72) and (73):

(72) John seems [*to like* good shoes]

(73) It seems [**that** John *likes* good shoes]

We will come back to the cross-linguistic extension of our analysis at the end of this section.

By far the most difficult case to account for is the instance of Long LDA seen in example (31), schematically represented in (32) and repeated here for convenience:

(74) a. [*Edokse moi* [*dokein tois allois anthro:pois* [***ho ane:r*** *einai* ***sophos***]]]
b. [Seemed to me [to seem to other people [**the man-NOM** to be **wise-NOM**]]]
c. [… T/V … DP $_{i\ \text{DAT}}$ [… Inf$_1$ … DP $_{j\ \text{DAT}}$ [DP $_{k\ \text{NOM}}$ … Inf$_2$ … Pred$_{\text{NOM}}$]]]
d. 'The man seemed to be to be considered wise by a lot of people'

In examples like this the main verb *edokse* agrees with the embedded subject *ho ane:r* that is located in the embedded clause that functions as the extraposed subject of the infinitival predicate *dokein*. Paraphrasing somewhat, recall the four conditions on Agree as argued for by Chomsky (2000; 2001):

i. Probe – Goal matching.

ii. The Goal must be active.

iii. The Goal must be in the domain of the Probe.[25]

iv. The is no closer Goal (with matching features).

These constructions seem to contravene both the condition on intervention and distance. Let's discuss them in turn. From the examples presented in section 3.1, it is clear that Ancient Greek does not have defective intervention, i.e. a dative argument of a raising verb does not block movement or agreement between the main verb and the embedded subject. In example (31)/(74), this is illustrated by the fact that the main verb appears in the 3rd person singular, agreeing with the embedded subject *ho ane:r* and the 1st person dative *moi* cannot block this. This is also seen in simpler cases like example (13) repeated here under (75):

(75) ***Pantes*** *eran* *emoige* ***edokoun*** *autou*
Everyone.**NOM** to love me.DAT.*ge* seemed.3.PL he.GEN
'Everyone seemed to me to love him' (Plato, *Charmides:* 154 c)

Here the nominative *pantes* seems to have actually moved into the domain of the main clause, across the dative *emoige* and agreeing fully (in number and person) with the main verb *edokoun.* This, of course, is not a peculiarity of Ancient Greek: Modern Greek, Italian and French do not exhibit defective intervention, allowing the embedded subject to move across a dative clitic, unlike say Spanish or Icelandic (cf. Torrego 1996, 1998, 2002; Anagnostopoulou 2003; Sigurðsson 2008; Preminger 2011 among many others). In trying to account for the lack of intervention effects in Ancient Greek, we could adopt the proposal made by Řezáč (2008) on the cross-linguistic properties of datives (and genitives). Řezáč (2008) argues that, normally, theta-related (i.e. inherent and lexical) case is a PP and therefore an opaque domain for Agree of the DP within it because it is a phase. A direct consequence of that would be that such datives are opaque domains that have their own *phi*-features valued within their domains, and as a result are inactive elements that cannot act as goals and do not interfere with other Agree mechanisms (such as the one between the main verb and the embedded subject). This is exactly what Michelioudakis (2011) argues for the complete lack of intervention effects in Ancient Greek: he argues that datives with purely inherent case do not count as interveners, defective intervention being the property of active features previously matched and deleted in the course of the derivation. Datives, therefore, in Ancient Greek come in two varieties and as such they may not intervene and block Agree in examples like the ones discussed here.

The other important aspect of the construction in (31)/(74) is that this long distance agreement operation happens across one clause. Normally LDA is observed

25 We will come back to a revision of the c-command condition on Agree, as proposed by Baker (2008).

between a main verb and an embedded subject, where the embedded clause is the object of the main verb. In the Ancient Greek example that we are discussing, this happens also two clauses down. If all the embedded clauses in this configuration are weak phases, however, as argued here (cf. the feature content of LDA clauses in (67)), then there is nothing really that prevents this apparent long LDA from happening in Ancient Greek.

4.2.2 OC and NOC

Moving on to cases of control, the environments that we need to account for are the following:

(i) OC

(ii) NOC (subject/extraposed clauses)

(iii) NOC (long distance control)

(iv) Control into adjuncts

The first case that we will discuss is perhaps the most straightforward environment: OC. The feature specifications of C and Person are as follows:

(76) OC IN AG:
C [−EPP / −edge], Person [+deficient / +anaphoric]

The derivation would then proceed as follows: Person enters the derivation deficient and anaphoric and as a result it cannot be matched by a locally spelled out DP. This means that its subject can only be a reference and *phi*-feature variable; let's call it PRO, following Sigurðsson's (2008) definition. PRO is active for agreement by having an unmarked case-feature (Chomsky 2000, commonly called *the Activity condition*). It also needs a full set of *phi*-features and a reference index. Infinitival Person, being *phi*-defective, cannot value its subject from within the embedded clause because it has no *phi*-features. Infinitival Person then probes upwards (Baker 2008) and finds the DP that binds it (the subject or the object), and gets reference and *phi*-features from it. Person then transfers its reference and *phi*-features to PRO which in turn transfers these features to the adjectival predicate. Case transmission is an epiphenomenon of Agree, which leads to fixing of the reference of PRO, and consequently the Person head. Case transmission then is achieved in (subject) OC through a series of Agree relationships:

i. Matrix T (Probe) agrees with its subject DP (Goal).

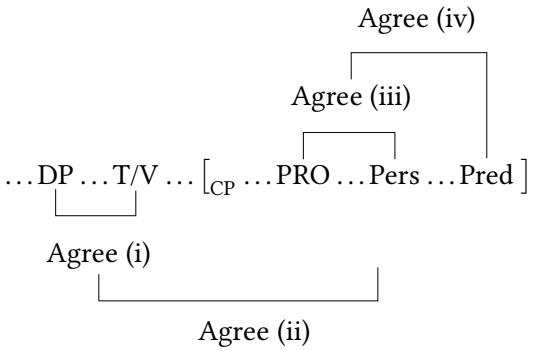
ii. Infinitival Person (Probe) agrees with the subject DP (Goal).

iii. Infinitival Person (Probe) agrees with PRO (Goal).

iv. PRO agrees with the adjectival predicate.

Agree relationships (ii) and (iii) could be simultaneous, instances of Multiple Agree in the sense of Hiraiwa (2001). A schematic representation of the above can be seen in (77):

(77)



The possibility of a Probe probing upwards (Baker 2008) and the existence of Multiple Agree (Hiraiwa 2001) are both deviations from the classic Chomskyan definition of Agree. However, we feel that they are necessary deviations that are useful in accounting for the facts presented in this paper.

Now, let's look into the first possibility of NOC where case transmission ensues, namely in subject clauses of impersonals (or extraposed clauses). The problem that these environments normally pose to a standard Agree-theory of control is exactly the fact that PRO is inside a subject clause, in a position where it cannot function as a Goal because normally Probes cannot probe upwards. In our analysis, however, Infinitival Person is the Probe of the relevant Agree operation. Let's look at the feature specifications of the infinitival clause which are as follows:

(78) NOC IN AG—*subject/extraposed clauses*:
C [−EPP / −edge], Person [+deficient / +anaphoric]

NOC is Ancient Greek is identical to OC, in the sense that here, too, Person enters the derivation deficient and anaphoric and as a result it cannot be matched by a locally spelled out DP. Recall that NOC for Landau also (at least the environments discussed here – not arbitrary control) involves a bound-variable reading for PRO. The only difference with OC is that NOC seems to be less local and as a result, for Landau, the reference of PRO is not fixed in syntax, but instead it is done through 'complex pragmatic conditions'. Ancient Greek is a language that collapses OC to NOC (and consequently possibly does not make use of these two labels except in cases of arbitrary control) and the phenomena are both syntactic, established through Agree and manifested morphologically through case transmission. Baker's (2008) theory of upwards probing is crucial for the extension of Agree in these environments as well. Now let's move to the other instance of NOC, namely long distance control, and see how Agree can be established across an intervener.

Long distance control is the second environment of NOC. It was exemplified in (46) and schematically represented in (47) repeated below:

(79) a. [***Ho Alkibiades*** *ebouleto* [*me: dokein* *tois Athe:naiois* [
[**Alcibiades-NOM** wanted [not to think the Athenians-DAT [
adunatos *einai* [*peisein*]]]]
unable-NOM to be [to persuade]]]]

b. DP $_{i\ \text{NOM}}$ … T/V … [Inf_1 … DP $_{j\ \text{DAT}}$ [$\text{PRO}_{i\ \text{NOM}}$ … Inf_2 … Pred_{NOM} [… Inf_2 …]]]

c. 'Alcibiades didn't want the Athenians to think that he is unable to persuade ... '

This example illustrates an instance of control, accompanied by case transmission across an intervening dative DP, and inside a doubly embedded clause. Essentially the environment looks like a mirror image of the LDA discussed above where the main verb could agree with a DP doubly embedded and across a dative intervener. Now this example could remind us of classic cases of OC across DPs that are cross-linguistically available with predicates like *promise,* where the object does not manage to intervene in the control relation. Ancient Greek *promise*-type verb *hupischnoumai* behaves predictably allowing for control across an object:

(80) *Kai peri men touto:n hupescheto moi bouleusasthai*
And on then these.GEN promise.3.SG.AOR me.DAT to consider.INF.FUT
'And he promised me that he would consider these requests.'
(Xenophon, *Anabasis*: 7.2.24)

(81) *Ego: de deka andrasi hupischomai* ***oios*** *te einai*
I.NOM then ten men.DAT promise.1.SG.PRES such.**NOM** then to be.INF.
machesthai
to fight.INF.PRES
'I myself do not promise to be such as to fight with ten men.'
(Herodotus, *Historia*: 7. 104)

In example (80) we see subject control allowed across a (dative) object. The crucial question would be what happens with case transmission with such verbs. Case transmission data are in general rare, and I have only managed to find one in the corpus. This is the case of example (81) where case transmission ensues (adjectival predicate *oios* surfaces in the nominative case as an instance of subject control) but the object is omitted. It is a well-known property of subject-control verbs (like *promise*) that they can omit their objects: in other words, they can detransitivize, but object-control verbs cannot (Bach's (1979) generalization). *Promise*-type verbs are problematic for any theory of control in which the relationship between the controller and PRO must be local and uniterrupted. Coming back to the Ancient Greek data in question, what they show us – irrespective of the possibility of case transmission across an object or not – is that control *can* happen in Ancient Greek

across an object. For example (46)/(79), we will appeal to the same principle that Landau (2000) appealed to when analysing English *promise,* Richards's (1998) 'Principle of Minimal Compliance':

(82) PRINCIPLE OF MINIMAL COMPLIANCE:
For any dependency D that obeys constraint C, any elements that are relevant for determining whether D obeys C can be ignored for the rest of the derivation for purposes of determining whether any other dependency D' obeys C.

According to this principle (adopted also by Rouveret 2008 in his analysis of resumption) when a grammatical principle has been obeyed once in a given construction it can then be ignored for the rest of the derivation. In our case (ex. (46)/(79)) and assuming again that all embedded clauses are weak phases, this means that an Agree relation can be established between the main subject DP and the embedded Person, regardless of the intervening dative. This dative has already agreed internally with the P that heads it (cf. again the ideas of Řezáč 2008 and Michelioudakis 2011) and can then be ignored for agreement for the rest of the derivation.

The fourth environment we will discuss involves control into an adjunct, introduced with an overt complementizer, exemplified in (49) and repeated here:

(83) *All' estai dikaioteros he: prin genesthai* ***akrate:s***
But be.3.SG.FUT more-just.NOM than before to be.INF.FUT powerless.**NOM**
'But we will be more just than before becoming powerless'
(Aristotle, *Ethica Eudemia:* 1223.23)

Recall that according to Landau (2000) adjuncts are islands, and Agree cannot penetrate them, and as a result OC cannot obtain there. A clear prediction from such an approach would be that as case transmission is parasitic on Agree, it should not be found in adjunct control. Clearly, this prediction is not borne out in Ancient Greek, and the case of the adjectival predicate in (49)/(83) above is nominative like the main clause subject that controls it. Adjuncts have been one of the most challenging environments of control, exactly because they have two properties:

i. They involve no c-command between the controller and PRO.
ii. They involve an overt complementizer that could further block the control relation.

In Ancient Greek, neither of the conditions above seem to block case transmission. How is this possible? Landau (2000, 2013) argues that control into adjuncts is best analysed as involving predication (following Clark 1990 and Williams 1992). According to the predication approach, the non-finite clause functions like the predicate and the controller saturates it. The two analyses differ as to whether the controlled element is indeed PRO or a null operator, but the intuition that is

common to both of them is that the controlled element needs to move covertly to SpecCP to be able to be bound by the controller. These analyses do not invoke any syntactic operation that resembles Agree that would feed case transmission as it is observed in Ancient Greek. Baker (2008) argues that not all agreement phenomena should be analysed on a par: for example, operator-variable agreement must involve a different type of agreement mechanism, not Agree. Consider example (84) from (Baker 2008: 122) (his (20)):

(84) Every girl$_k$ told every boy about her$_k$ troubles with her$_k$ parents.

If examples like the one above are instances of binding, then one could adopt Gallego's (2010) proposal that binding also involves Agree and extend it to such cases. In any case, the fact that Ancient Greek seems to morphologically express control into adjuncts with exactly the same mechanism as it does with every other agreement configuration seems to suggest to us that perhaps Ancient Greek is a language that truly treats *all* agreement phenomena on a par. There is definitely some more work to be done in looking at case transmission with adjuncts cross-linguistically, but for the purposes of our analysis it looks as if operator binding is also another operation that feeds case transmission.

The last environment that we need to discuss is the 'exceptional' anti-case transmission facts whereby the controller does not transmit its case to PRO. The relevant example is repeated below:

(85) *Houtoi edee:the:san* ***Athe:naio:n*** [*sphisi* ***boe:thous***
They.NOM asked Athenians.GEN them.DAT assistants.ACC
genesthai]
to become
'They requested the Athenians to become their assistants.'
(Herodotus, 6, 100)

These examples arguably involve some type of Agree between an element in the main clause and the Person head and PRO in the infinitival clause that does not give rise to case transmission. What we want to argue here is that these cases resemble another peculiarity of Ancient Greek infinitival syntax, namely the existence of the accusative small *pro* in infinitival clauses (example (7), repeated below):

(86) *All' emoige,* [*ephe: o: So:crates*], ***didakton*** *einai dokei*
But me.DAT *ge* said.3.SG oh Socrates taught.ACC to be seems.3.SG
'But, he said, at least for my part, Socrates, I think it is teachable (wisdom)'
(Plato, *Euthydemus:* 282c)

In (7)/(86) we see a null infinitival subject, appearing in the accusative case (the case that is independently available from within the infinitival clause) that refers to an element prominent in the discourse but not present in the clause that immediately

contains the infinitive. In particular, the example above is an answer to the question 'can wisdom be taught?'. A language that allows this sort of referential small *pro* in infinitives has no possibility of actually disallowing it in the exceptional cases like (85) where its antecedent is more local. If small accusative *pro* in Ancient Greek infinitives is truly available, as example (7)/(86) suggests, then this element could exceptionally appear in control-like configurations, where agreement between PRO and its predicate would fail due to independent reasons (for example due to the noun-adjective agreement asymmetry that we discussed in section 3.4). The anti-case transmission cases, then, are instances of a locally controlled accusative *pro*, a category that is independently available in Ancient Greek, and they do not reflect any real optionality in the case transmission phenomenon.

This concludes our analysis of all the environments that illustrate case transmission in Ancient Greek (including one which does not). To sum up, our proposal regarding embedded Person involving more than one feature [±deficient / ±anaphoric] can predict the variation found within AG. OC, NOC and LDA/raising can be analysed on a par, by making reference to the features of their embedded Person heads.

A very important consequence of our proposal involves the nature of dative case in AG. Landau (2008) explicitly argues that only structural case is able to trigger case transmission, while lexical case never does. This is shown through the distinct behaviour of genitive of negation (an accusative that becomes genitive under structural configurations) vs. other lexical genitive in Russian. Predictably, the former but not the latter can trigger case transmission. According to Landau (2008), this is another clear argument that OC utilizes Agree, as the structural case feature is a member of the *phi*-set on T/v (lexical case is not because it is not assigned by a functional head). Consequently only a structural case feature will be transmitted as part of an Agree operation involving T/v.

If this is on the right track, AG dative case must count as structural case in the configurations in which it gets transmitted[26] and inherent in the configurations where it does not block or affect agreement or control across it in any way. In other words, dative case counts as mixed in Ancient Greek. This is exactly what Alexiadou et al. (2013) and Anagnostopoulou & Sevdali (2012) have argued for datives cross-linguistically. More specifically, the above authors show that datives and genitives in Ancient Greek alternate with nominatives in passivization of both monotransitive and ditransitive predicates, and as such count as structural cases in these configurations, but they cannot in Icelandic middles for example, or Japanese monotransitives. Our data in this paper therefore further contribute to the ongoing discussion about the nature of (dative) case and its place in grammar.

26 I want to thank Elena Anagnostopoulou for suggesting this to me.

4.3 An interesting configuration

In this paper we argued that case transmission is the morphological instantiation of person specification in AG infinitives that is fed by the operation Agree. Moreover, we showed that Agree often involves one Probe and multiple Goals (Hiraiwa 2001). Finally, we showed that some dative arguments bear structural case and as a result they can Agree and transmit their case to PRO. A straightforward prediction of this proposal is that if there are two possible antecedents for the embedded Person head that are co-referential but surface with different case values, then the infinitival subject can surface with either of these two case features. This prediction is borne out in Ancient Greek as we can see in examples (87)–(90):

(87) ***Epieike:i*** *an* *moi* *doko:* *pros* *touton* *legein*
Lenient.**DAT** *an* me.**DAT** seem.1.SG about these.ACC to speak
'I think I speak fairly to him' (Plato, *Apology:* 34d)

(88) *an moi doko: einai* ***to:i periionti iatro:i***
an me.**DAT** seem.1.SG to be [the visiting doctor].**DAT**
'I think I should be like that doctor who goes round'
(Xenophon, *Works on Socrates*: 15. 9)

(89) *kai ego: moi doko: toutou soi* ***sumpse:phos*** *einai.*
And I.**NOM** me.DAT think.1.SG this.GEN you.DAT agreeing.**NOM** to be
'And I believe I quite agree with you in that' (Plato, *Cratylus*: 398c)

(90) *Doko: moi* ***adunatos*** *einai*
Think.1.SG me.DAT weak.**NOM** to be
'I think that I am weak' (Plato, *Republic:* 2. 368b)

The examples above are found with the familiar verb *dokei* which has been previously translated as 'seem'. All of these examples are translated as 'I think' and have the following characteristics:

i. Nominative and dative obligatorily co-refer.
ii. Nominative and dative must only be in the first person.
iii. Nominative can transfer to PRO.
iv. Dative can transfer to PRO.
v. Dative is always a 'weak' pronoun (*moi*).
vi. Nominative can be overt (89) or null (90) with no concomitant effects on case transmission.

What the examples above show us is that whenever there is more than one DP in the main clause that are co-referential, the Multiple Agree operation involves main T, nominative DP, dative DP and embedded Person. Interestingly, Person can get

reference from both of them and get the case features from *either of them* further transmitting them to PRO. In other words, the embedded Person that acts as a Probe and establishes Agree with a possible controller in the main clause can do that either with the dative or with the nominative. Locality issues do not arise, exactly because the two DPs are co-referential and in a sense both enter a prior Agree with matrix T. This environment serves as a confirmation of our proposal whereby Agree is linked to reference tracking and specification of Person, at least in Ancient Greek. It also confirms both the simultaneity of all the Agree operations involved (Multiple Agree) and the status of dative DPs as elements bearing structural case, and therefore participating in Agree-type operations.

4.4 The rarity of the Ancient Greek paradigm and cross-linguistic variation in Person marking

In this paper we argued that unlike what has been observed in the literature so far, case transmission is found in a variety of constructions in Ancient Greek: LDA/raising, NOC (subject clauses and long distance Agree), control into adjuncts and OC. We analysed all of these constructions as involving some type of Agree operation between an element in the matrix clause and a deficient and anaphoric Person head in the embedded clause that feeds case transmission. In doing so we argued that all long-distance dependencies are instances of Agree in AG: (a) control involves Multiple Agree of deficient Person, (b) Person can probe upwards, (c) LDA is Agree between a nominal in one domain and a verb in another domain etc. However, the Ancient Greek pattern described here is typologically rare and its rarity cannot be reduced to the extensive existence of case morphology in this language: Russian and Icelandic have extensive case morphology, but do not pattern like Ancient Greek in having all long-distance dependencies feed case transmission. What then makes Ancient Greek so rare?

What we want to argue is that Ancient Greek is so rare because it combines a number of equally rare but cross-linguistically independently available properties. First of all, the pattern observed here relies crucially on all cases being structural in this language, and therefore able to act as probes. This has independently been argued for AG by Alexiadou et al. (2013) and Anagnostopoulou & Sevdali (2012). Also, the flexibility of the Ancient Greek complementation system, with strong and weak phases at the C level (at least in non-finite clauses), and consequently the availability of a small *pro* as an infinitival subject (Sevdali 2007, 2013), is crucial, as it allows for the deviation from the strict case transmission pattern, as discussed in section 3.4. Ancient Greek then is a discourse-configurational language as argued by Matić (2003) with the characteristic flexibility observed by such languages. This, combined with the aforementioned properties, makes it an extremely rare case. To sum up, Ancient Greek is not rare because it has some very exotic property that we have never seen before; instead it is rare because it has a combination of already rare properties that are observed independently in isolation, in other languages

also.

An important consequence of this proposal has to do with the notion of a dependent or a defective clause cross-linguistically. Languages differ with respect to how they mark the fact that an embedded clause is person-deficient, or dependent in some way, but they all have to mark it somehow. There are many cross-linguistic possibilities that include (but are not restricted to):

i. Person-deficient infinitives have special morphology on the infinitive (or lack thereof) – cf. European Portuguese inflected and uninflected infinitives (Raposo 1987).

ii. Person-deficient infinitives have no case for their subject, but *phi*-independent subjects do – the case transmission vs. case independence paradigm of Ancient Greek that we discussed in this paper.

iii. Person deficiency is expressed with an infinitive, while *phi*-independence is expressed with a finite clause – English.

iv. Person-deficiency is marked with a different complementizer (cf. Modern Greek and Romanian 'subjunctives' (Dobrovie-Sorin 1994).

Availability or not of case from within or outside the infinitival clause is then seen as an alternative to both verbal morphology (agreement) and finiteness (as a property of a clause). Phenomena of switch reference found in many Native American and Papuan languages fall neatly under this rubric. Haiman & Munro (1983) describe switch reference as a device for referential tracking. What makes it interesting is that this function is done (more often) through verbal affixation. However, there are languages where the switch reference markers resemble case markers: Austin (1980, 1981) shows that in Australia the marker for 'different subject' resembles that of allative case, while the marker for 'same subject' resembles that of locative case. Case morphology, then, can be seen to take the function of reference tracking, or Person specification in our terms. The operation of dependence is always the same (Agree) but what varies is the locus of the morphological exponence of this dependency. Languages could to manifest it on the verbal form (through agreement), on the complementizer, or on the nominal (through its case). The category that transcends all these is Person.

5 Conclusion

This paper reports on a rare cross-linguistic pattern whereby OC, NOC, control into adjuncts and LDA are all manifested through case transmission in Ancient Greek. In order to account for it we proposed the case transmission generalization:

(91) THE CASE TRANSMISSION GENERALIZATION:
Whenever the infinitival subject gets its reference from an argument in the main clause, it copies the case of that argument.

Our proposal capitalized on the intuition that case transmission in AG is the way to mark person deficiency in the infinitival clause. The cross-linguistic variation in the means of person specification shows us some important things: if languages use as variable means as finiteness, complementizers, overt vs. null subjects etc. then all of these elements must be conceptually similar. This is obviously reminiscent of analyses of null subject languages like that of Alexiadou & Anagnostopoulou (1998) who argue that agreement is pronominal in these languages. Such approaches entail that parametric variation can only be limited to which features AGR (in our terms Person) has cross-linguistically [±pronominal]. Or as (Platzack 2004: 84), puts it, 'the difference between pronouns and agreement is not categorical but syntactical'.

In the way in which we have analysed AG case transmission, case morphology functions like a logophoric element, marking the perspective of the Person head of the embedded clause (cf. Siewierska 2004 for a definition of logophoricity along these lines). Focus on cross-linguistically variable phenomena such as case transmission should be used to uncover the universal properties of categories such as case. AG case transmission tells us that case morphology may be cross-linguistically employed for very different purposes. Similarly to switch reference languages that use different case forms as 'same subject' vs. 'different subject' markers (Austin 1980, 1981), AG case has a logophoric function where sameness of case (case transmission) is the exponent of co-reference with an argument in the main clause. The conditions that seem to restrict this operation are properly syntactic and case transmission is always an epiphenomenon of Agree. The anaphoric function of the Person head of AG infinitives, then, is solely signalled by the case morphology of the null infinitival subject. Case, then, as the exponent of Person, can be added to the inventory of elements that can signal co-reference across two domains, along with finiteness, complementizers, tense and agreement.

References

Alboiu, G. 2007. Moving forward with Romanian backward control and raising. In S. Dubinsky & W. Davies (eds.), *New horizons in the analysis of control and raising*, 187–211. Dordrecht: Springer.

Alexiadou, A. & E. Anagnostopoulou. 1998. Parametrising Agr: Word-order, V-movement and EPP checking. *Natural Language and Linguistic Theory* 16. 491–539.

Alexiadou, A., E. Anagnostopoulou, G. Iordachioaia & M. Marchis. 2012. In support of Long Distance Agree. In A. Alexiadou, G. Müller & T. Kiss (eds.), *Local modeling of non-local dependencies*, 85–110. Berlin: Mouton De Gruyter.

Alexiadou, A., E. Anagnostopoulou & C. Sevdali. 2013. Dative – Nominative alter-

nations on Germanic languages. *Lingue e Linguaggio* 1. 1–16.
Allen, C. 1995. *Case marking and reanalysis: grammatical relations from Old to Early Modern English.* Oxford: OUP.
Anagnostopoulou, E. 2003. *The syntax of ditransitives: evidence from clitics.* Berlin: Mouton de Gruyter.
Anagnostopoulou, E. & C. Sevdali. 2012. Case alternations in Ancient Greek passives and the typology of case. Ms. University of Crete and University of Ulster.
Andrews, A. D. 1971. Case agreement of predicate modifiers in Ancient Greek. *Linguistic Inquiry* 2. 127–51.
Andrews, A. D. 1990. Case structure and control in Modern Icelandic. In J. Maling & A. Zaenen (eds.), *Syntax and semantics*, 187–234. San Diego, CA: Academic press.
Arad, M. & A. Roussou. 1997. Particles and C-positions in Classical Greek. Ms. University College London and University of Wales, Bangor.
Austin, P. 1980. *A Grammar of Diyari.* Cambridge: Cambridge University Press.
Austin, P. 1981. Switch-reference in australia. *Language* 57. 309–334.
Bach, E. 1979. Control in Montague grammar. *Linguistic Inquiry* 10(4). 515–531.
Bailyn, J. F. 2001. The syntax of Slavic predicate case. In A. Strigin et al. (eds.), *ZAS occasional papers in linguistics*, vol. 1– 26, Berlin: Zentrum für Allgemeine Sprachwissenschaft.
Bailyn, J. F. 2011. *The syntax of Russian.* Cambridge: Cambridge University Press.
Baker, M. 2008. *The syntax of agreement and concord.* Cambridge: Cambridge University Press.
Basse, G. 2008. Factive complements as defective phases. In N. Abner & J. Bishop (eds.), *Proceedings of the 27th West Coast Conference on Formal Linguistics*, 54–62. Somerville, MA: Cascadilla Proceedings Project.
Bobaljik, J. & I. Landau. 2009. Icelandic control is not A-movement: The case from case. *Linguistic Inquiry* 40. 113–132.
Boeckx, C. 2009. On Long distance Agree. *Iberia* 1(1). 1–32.
Boeckx, C. & N. Hornstein. 2004. Movement under Control. *Linguistic Inquiry* 35. 431–452.
Bondaruk, A. 2004. *PRO and Control in English, Irish and Polish: A minimalist analysis.* Lublin: Wydawnictwo.
Borer, H. 1989. Anaphoric AGR. In O. Jaeggli & K. J. Safir (ed.), *The Null Subject Parameter*, 69–110. Dordrecht: Kluwer.
Caha, P. 2009. *The nanosyntax of case*: CASTL, University of Trømso dissertation.
Cecchetto, C. & R. Oniga. 2002. Consequences of the analysis of Latin Infinitival clauses for the theory of Case and Control. *Lingue e Linguaggio* 1. 151–189.
Chantraine, P. 1953. *Grammaire hómerique. vol 2.* Paris: Klincksieck.
Chomsky, N. 2000. Minimalist inquiries. In R. Martin et al (ed.), *Step by step: essays on minimalism in honor of Howard Lasnik*, 89–115. Cambridge Mass: MIT Press.
Chomsky, N. 2001. Beyond explanatory adequacy. In A. Belletti (ed.), *Structures and*

beyond: the cartography of syntactic structures Vol III, 104–131. Oxford: Oxford University Press.

Clark, R. 1990. *Thematic theory in syntax and interpretation.* London: Routledge.

Conti, L. J. 1998. Zum Passiv von griechischen Verben mit Genitiv bzw. Dativ als zweitem Komplement. *Münchener Studien zur Sprachwissenschaft* 58. 13–50.

Creider, C. & R. Hudson. 2003. Case agreement in Ancient Greek: implications for a theory of covert elements. In K. Sugayama & R. Hudson (eds.), *Word Grammar: new perspectives on a theory of language structure*, 35–53. London: Continuum.

Devine, A. M. & L. D. Stephens. 1999. *Discontinuous Syntax: hyperbaton in Greek.* Oxford: Oxford University Press.

Dobrovie-Sorin, C. 1994. *The syntax of Romanian.* Berlin: Mouton de Gruyter.

Fanselow, G. 2000. Optimal exceptions. In B. Stiebels & D. Wunderlich (eds.), *The lexicon in focus*, 173–209. Berlin, Ackademie Verlag.

Gallego, A. 2010. Binding through Agree. *Linguistic Analysis* 34. 163–192.

Gallego, A. 2011. Control through multiple Agree. *RRL, LVI* 4. 313–346.

Goodwin, W. W. 1889. *Syntax of the moods and tenses of the Greek verb.* London: McMillan.

Goodwin, W. W. 1894. *Greek grammar.* London: Bristol Classics Press.

Haiman, J. & P. Munro. 1983. *Switch reference and Universal Grammar.* Amsterdam: John Benjamins.

Harley, H. 1995. *Subjects, events and licensing*: MIT dissertation.

Hiraiwa, K. 2001. Multiple Agree and the defective intervention constraint in Japanese. In O. Matushansky & L. Nathan (eds.), *MIT Working papers in linguistics: Proceedings of HUMIT 2000*, 67–80. Cambridge, MA: MITWPL.

Holmberg, A. & C. Platzack. 1995. *The role of inflection in Scandinavian syntax.* Oxford: Oxford University Press.

Hornstein, N. 1999. Movement and control. *Linguistic Inquiry* 30. 69–96.

Horrocks, G. 1987. Binding and control in Ancient Greek. *Studies in Greek linguistics 8.* Proceedings of the 8th annual meeting of the Department of Linguistics, Faculty of Philosophy, Aristotle University of Thessaloniki.

Humbert, J. 1930. *La disparition du datif en grec du Ier au Xème siècle.* Paris: Champion.

Lamontagne, G. & L. Travis. 1987. The syntax of adjacency. In M. Crowhurst (ed.), *Proceedings of WCCFL*, vol. 6, 173–186. Somerville, MA: Cascadilla Proceedings Project.

Landau, I. 2000. *Elements of Control: structure and meaning in infinitival constructions.* Dordrecht: Kluwer.

Landau, I. 2003. Movement out of control. *Linguistic Inquiry* 34. 471–498.

Landau, I. 2004. The scale of finiteness and the calculus of control. *Natural Language & Linguistic Theory* 22. 811—877.

Landau, I. 2005. Severing the distribution of PRO from Case. *Syntax* 9. 153–170.

Landau, I. 2007. Movement resistant aspects of Control. In W. Davies & S. Dubinsky

(eds.), *New horizons in the analysis of control and raising*, 293–326. Dordrecht: Springer.

Landau, I. 2008. Two routes of Control: Evidence from case transmission in Russian. *Natural Language and Linguistic theory 26* 4. 877–924.

Landau, I. 2009. Commentary on Sevdali's paper. In C. Harpert, J. Hartman & D. Hill (eds.), *Proceedings of the 2007 workshop in Greek syntax and semantics at MIT*, vol. 57, 267–273. Cambridge, MA: MITWPL.

Landau, I. 2013. *Control in generative grammar: a research companion.* Cambridge: Cambridge University Press.

Liddell, H. G. & R. Scott. 1940. *A Greek – English lexicon.* Online edition.

Maling, J. & R. A. Sprouse. 1995. Structural Case, specifier-head relations and the case of predicate NPs. In H. Haider, S. Olsen & S. Vikner (eds.), *Studies in comparative Germanic syntax*, 167–186. Dordrecht: Kluwer.

Manzini, M. R. 1983. On Control and Control theory. *Linguistic Inquiry* 14. 421–446.

Martins, A. M. & J. Nunes. 2005. Raising issues in Brazilian and European Portuguese. *Journal of Portuguese Linguistics* 4(2). 53–77.

Matić, D. 2003. Topic, focus and discourse structure: Ancient Greek word order. *Studies in Language* 27(3). 573–633.

Michelioudakis, D. 2011. *Dative arguments and abstract Case in Greek*: University of Cambridge dissertation.

Philippaki-Warburton, I. & G. Catsimali. 1989. Accusativus-cum-Infinitivo in Ancient Greek. *Studies in Greek Linguistics 10.* Proceedings of the 10th annual meeting of the Department of Linguistics, Faculty of Philosophy, Aristotle University of Thessaloniki. 89–108.

Philippaki-Warburton, I. & G. Catsimali. 1997. Control in Ancient Greek. In G. Drachman, A. Malikouti-Drachman, J. Fykias & C. Klidi (eds.), *Greek linguistics '95*, Graz: W. Neugebauer Verlag.

Philippaki-Warburton, I. & G. Catsimali. 1999. On Control in Greek. In A. Alexiadou, G. Horrocks & M. Stavrou (eds.), *Studies in Greek syntax*, 153–168. Dordrecht: Kluwer.

Platzack, C. 2004. Agreement and the Person Phrase hypothesis. *Working papers in Scandinavian syntax* 73. 83–112.

Preminger, O. 2011. *Agreement as a fallible operation.* MIT dissertations in linguistics. Cambridge, MA: MITWPL.

Przepiórkowski, A. 2004. On case transmission in Polish control and raising constructions. *Poznań Studies in Contemporary Linguistics* 39. 103.

Quicoli, A. C. 1982. *The structure of complementation.* Ghent – Antwerp – Brussels: E. Story – Scientia Ghent.

Raposo, E. 1987. Case Theory and Infl-to-Comp: the inflected infinitive in European Portuguese. *Linguistic Inquiry* 18. 85–109.

Řezáč, M. 2008. Phi-agree and theta-related case. In D. Harbour, D. Adger & S. Bejar (eds.), *Phi theory. phi-features across modules and interfaces*, 83–129. Oxford:

Oxford: Oxford University Press.
Richards, N. 1998. The principle of minimal compliance. *Linguistic Inquiry* 29. 599–629.
Rouveret, A. 2008. Phasal agreement and reconstruction. In R. Freidin, C. P. Otero & M. L. Zubizaretta (eds.), *Foundational issues in linguistic theory: essays in honor of Jean-Roger Vergnaud*, 167–196. Cambridge, MA: MIT Press.
Schwyzer, E. 1953. *Griechische Grammatik. Zweiter Band: Syntax und syntaktische Stilistik*. Munchen: C. H. Beck'sche Verlagsbuchhandlung.
Sevdali, C. 2003. On the properties of the Ancient Greek infinitive. In *Proceedings of the 6th international conference in Greek Linguistics*, Rethymnon, Crete.
Sevdali, C. 2007. *Infinitival clauses in Ancient Greek: overt and null subjects, the role of case and focus*: University of Cambridge dissertation.
Sevdali, C. 2009. Control into CPs: when finiteness doesn't matter. In C. Harpert, J. Hartman & D. Hill (eds.), *Proceedings of the 2007 workshop in Greek syntax and semantics at MIT*, vol. 57, 251 – 266. Cambridge, MA: MIT Working papers in Linguistics.
Sevdali, C. 2013. Ancient Greek infinitives and phases. *Syntax* DOI: 10.1111/synt.12004. 1–38.
Siewierska, A. 2004. *Person*. Cambridge: Cambridge University Press.
Sigurðsson, H. 1989. *Verbal syntax and case in Icelandic*: University of Lund dissertation.
Sigurðsson, H. 1991. *Icelandic case-marked PRO and the licensing of lexical arguments*, vol. 9. Natural Language and Linguistic Theory.
Sigurðsson, H. 2000. The locus of case and agreement. *Working papers in Scandinavian syntax* 57. 1–46.
Sigurðsson, H. 2007. The No Case generalization. In A. Alexiadou, F. Schäfer & T. McFadden (eds.), *Advances in comparative Germanic syntax*, 249–280. Amsterdam: John Benjamins.
Sigurðsson, H. 2008. The case of PRO. *Natural Language and Linguistic Theory* 26. 403–450.
Sitaridou, I. 2002. *The synchrony and the diachrony of Romance infinitives with Nominative subjects*: University of Manchester dissertation.
Smyth, H. W. 1920. *Greek grammar*. Harvard University Press.
Spyropoulos, V. 2005. The syntax of Classical Greek infinitive. In K. É. Kiss (ed.), *Universal Grammar in the reconstruction of ancient languages*, 295–337. Berlin: Mouton de Gruyter.
Spyropoulos, V. 2007. Finiteness and control in Greek. In W. D. Davies & S. Dubinsky (eds.), *New horizons in the analysis of control and raising, 159–183*, 159–183. Dordrecht: Springer.
Tantalou, N. 2003. Infinitives with overt subjects in Classical Greek. *Studies in Greek Linguistics* 23. 358–365.
Torrego, E. 1996. Experiencers and raising verbs. In R. Freidin (ed.), *Current issues*

in comparative grammar, New York: Springer.
Torrego, E. 1998. *The dependencies of objects*. Cambridge: MIT Press.
Torrego, E. 2002. Arguments for a derivational approach to syntactic relations based on clitics. In Samuel David Epstein & T. Daniel Seely (eds.), *Derivation and explanation in the Minimalist Program*, 249–268. Malden, MA: Blackwell.
Vasileiou, M. 2001. *To aparémphato tes arhaías ellenikés upo élegho*. University of Athens MA thesis.
Webelhuth, G. 1995. X-bar theory and case theory. In Gert Webelhuth (ed.), *Government & Binding Theory and the Minimalist Program*, 15–95. Oxford / Cambridge, MA: Basil Blackwell Publishers.
Williams, E. 1992. Adjunct control. In R. Larson, S. Iatridou, U. Lahiri & J. Higginbotham (eds.), *Control and grammar*, 297–322. Dordrecht: Kluwer.
Wyngaerd, G. J. V. 1994. *PRO–legomena: distribution and reference of infinitival subjects*. Berlin: Mouton de Gruyter.
Zaenen, A., J. Maling & H. Thráinsson. 1985. Case and grammatical functions: the Icelandic passive. *Natural language and linguistic theory* 3(4). 441–483.

Christina Sevdali
School of Communication / Institute for Research in the
Social Sciences
University of Ulster
Jordanstown campus
Shore Road
Newtownabbey
Co. Antrim
BT37 0QB

c.sevdali@ulster.ac.uk
http://www.ulster.ac.uk/staff/c.sevdali.html